IRON AGE

106TH ANNUAL ISSUE • A CHILTON PUBLICATION • JANUARY 5, 1961

1961 MARKET PLANNING GUIDE

The Business Outlook p. 89

Executives' Forecast p. 121

Steel Consumption 1960-61 p. 207

Price & Production Data p. 221

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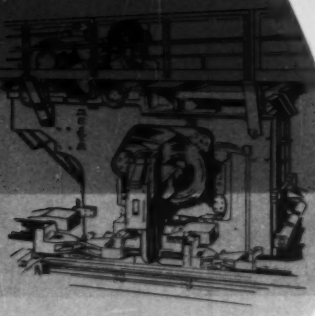
MESTA 80" Continuous Hot Strip Mill
Finishing Stands operating at
Fairless Works, U. S. Steel Corporation



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TIN MILL PRODUCTS:
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PLATES:
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1961: SQUEEZE ON PROFITS

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FOUR MARKETING FEATURES —In this 106th Annual Issue of The IRON AGE are four valuable marketing features — executives' forecast, industry outlooks, steel consumption survey and price and production data. Details are below.

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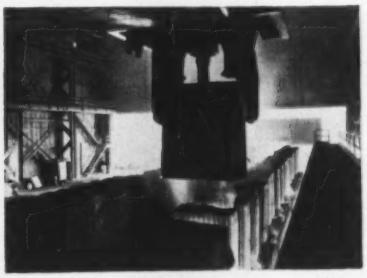

BUSINESS OUTLOOK—1961

THE GENERAL VIEW

Timing the Recovery—The recession that many refused to recognize months ago is now established. Timing of the recovery is now the important point.

Here's outlook for major sectors of the economy. P. 89

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New Planning Tool — Special IRON AGE study reports use of

seven major steel products by metalworking industry for 1960 with a forecast for first half of '61.

Breakdown by 3-digit SIC groups makes new data useful for market planning. P. 207

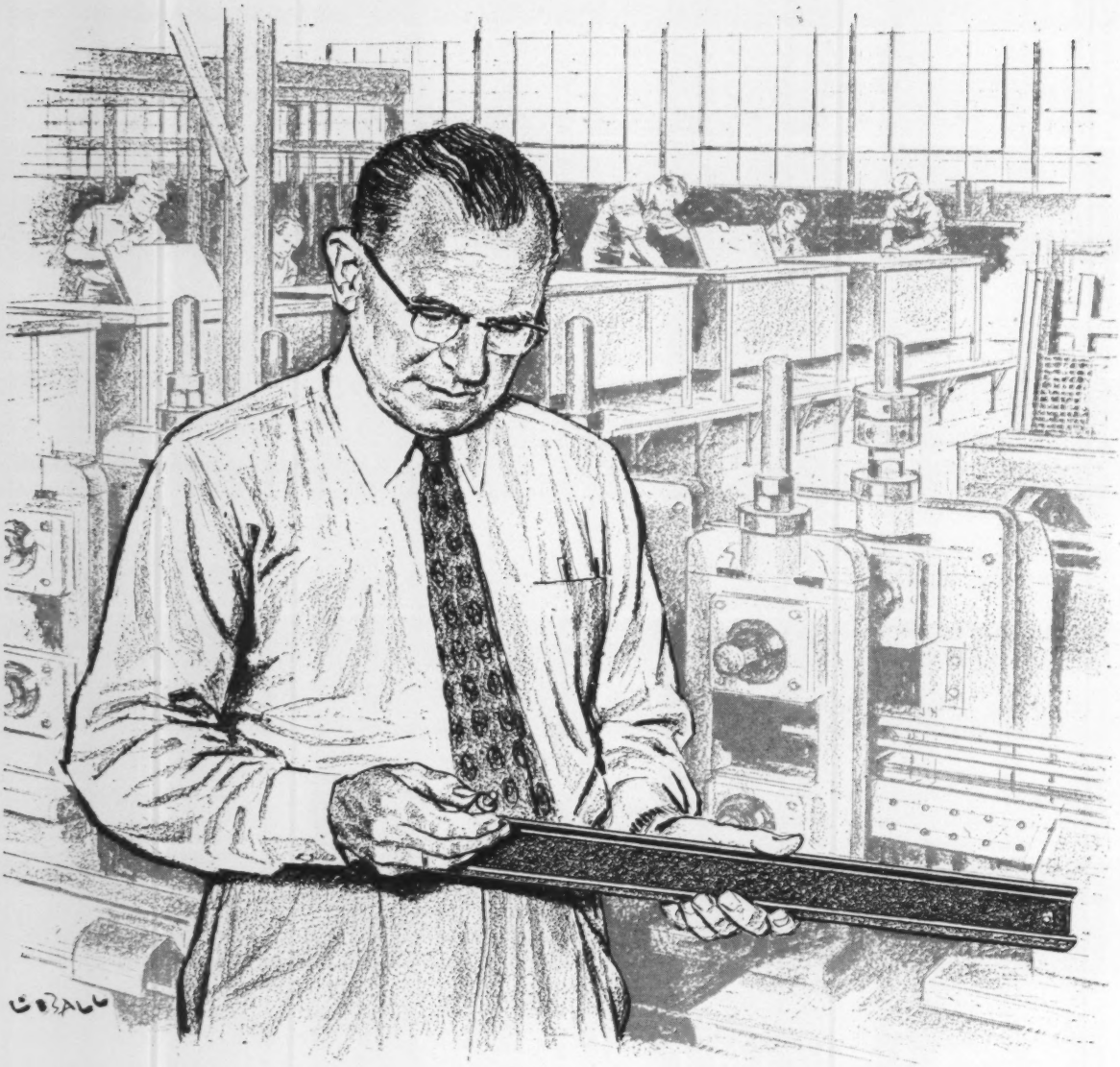
PRICES AND PRODUCTION

Latest Figures—Sixteen-page section gives price data and output for steel, nonferrous metals, pig iron, ferroalloys, iron ore, refractories, and scrap. P. 221

NEXT WEEK

DEPRECIATION SURVEY

The Outcome — Industry has waited many months for the outcome of the Treasury Dept.'s survey of depreciation practices. Next week Under Secretary Fred C. Scribner, Jr., interprets the answers in an exclusive interview.



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Steel

Get Your Shoes Fixed: A Long, Rocky Road Ahead

Let no man fool you. The next five years will be tough for all companies that hope to move ahead. To stand still is to deteriorate—or, eventually, to liquidate.

Yet let no man say there isn't hope. There is. It allows no compromise with dedicated hard work and a willingness to explain and communicate your side of the story.

It won't be pleasant trying to keep costs down. It isn't going to be easy designing new and successful products or techniques. It will be hard to find a production cost breakthrough. But all this can—and will—be done by many.

Exhorting the "government" to do something for business may be a waste of time. Communication and explanation at the source is better. Keep after your own district, State and Federal representatives. They must be informed of the plight of business no matter how often the story is told.

It may be some time before labor will understand the somber outlook for profits—profits with which to buy the machinery and techniques needed to meet international price competition.

You must try to convince union leaders that the gap between American and foreign wages is serious. Unless they do their part to protect the goose that lays the golden egg, they hurt all labor. This will be an almost impossible job. But not to attempt it is to give up.

Foreign businessmen believe the world is their oyster; and they are out to open it. They will compete in your own back yard. They have—or know about—the best and latest machinery.

Where is our salvation, then? If by salvation we mean a sudden end to our woes, surprise solutions to our troubles, or a cessation of our opposition, there is none. But if we mean looking for better tools, products and methods—better than our foreign friends have—there is some hope.

If we allow for more direct action and less committee thinking, we have made a start. If we attempt to communicate, explain and even cajole, we have made a small start in keeping free enterprise.

If we do our part to try to enlighten government people, we have done a minimum. If we give the most of ourselves, if we think and don't meander, and if we convince others of America's danger, we are headed in the right direction.

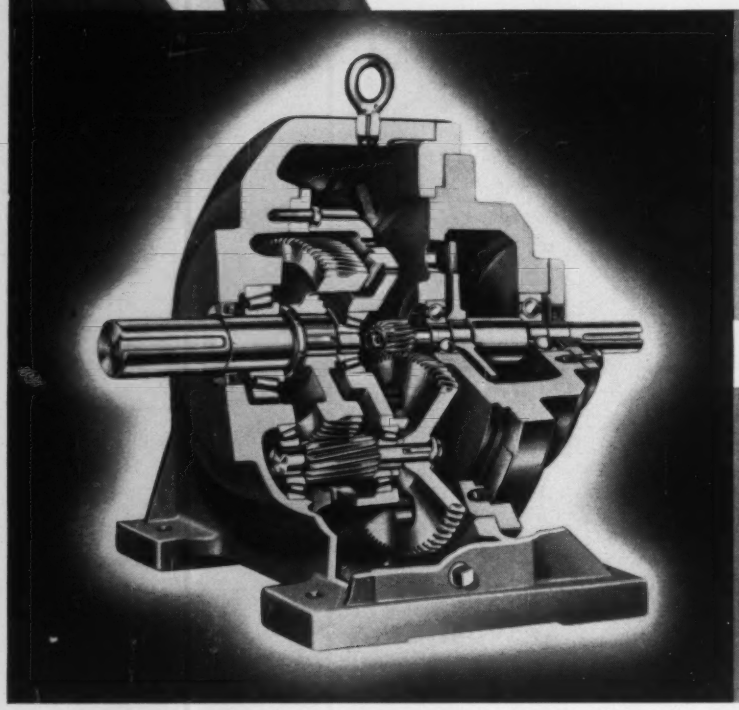
When we have separated the men from the boys, we are on our way—to a sound economic future.

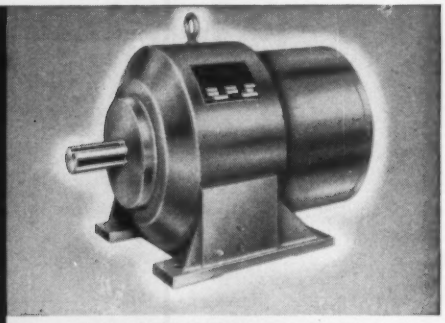
Tom Campbell

Editor-in-Chief

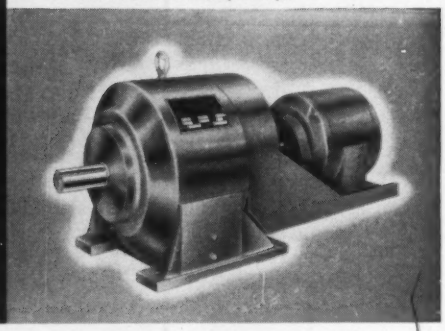
"Buying at Philadelphia Gear, I get the benefit of this simple formula..."

IMPROVED GEARS = [LONGER LIFE / MORE POWER]





Available as "IN-LINE" Reducer (left), or as a GearMotoR with flange mounted motor (above) or foot mounted motor (below).



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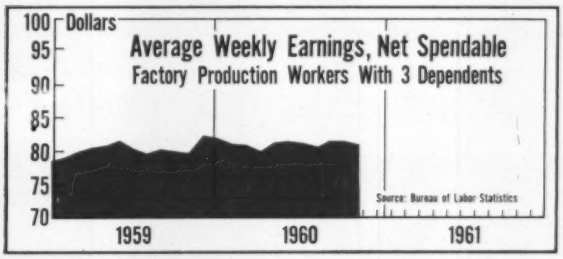
The Key to 1961: Consumer Buying

The big question as the New Year takes its first uncertain steps is whether consumer buying of finished products will fall off this year. Up to the last weeks of 1960, sales of finished products had held up well. Most of the sag during the year could be traced to liquidation of raw material inventories.

During the year, two-thirds of the drop in the FRB Index of Industrial Production was caused by a 15-point drop in the index of durable goods materials. Over the same period, production equipment showed little or no decline, and consumer goods dropped only moderately.

One Hitch: Lower Spending Power

If consumer spending is to hold up, it faces the problem of declining spending power. In November,



spendable earnings of a factory worker dipped from $81.18 in October to $80.95. In the face of higher prices, "real" spendable earnings dropped even more by comparison.

Machine Tool Orders Up a Notch

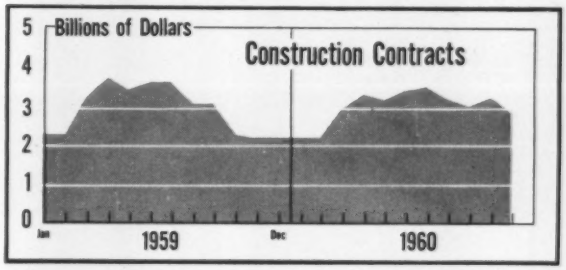
Orders for metal cutting tools picked up a bit from October to a total of $39.75 million, according to the National Machine Tool Builders' Assn. The bulk of the gain, from $35.6 million in October, is in a $3 million pickup in foreign orders. But orders for forming tools dropped more than 50 pct, from $20.6 million in October to only $9.9 million in November.

Press Makers Divided on Outlook

In spite of the downtrend in forming tool orders, at least one major press maker says 1961 sales of presses will be the best his company has had in years. Forecast is based on heavy purchases for large special press lines by two of the Big Three automakers. The outlook for foreign orders is also good. Others, while agreeing export is improved, say the domestic outlook as far from that encouraging.

Construction Continues to Hold Up

Although construction contracts in November reflect



a seasonal drop, the overall level for the year continues high. November, usually a drab period in building, set a new record for the month, according to F. W. Dodge Corp. figures, holding 22 pct above November of the previous year.

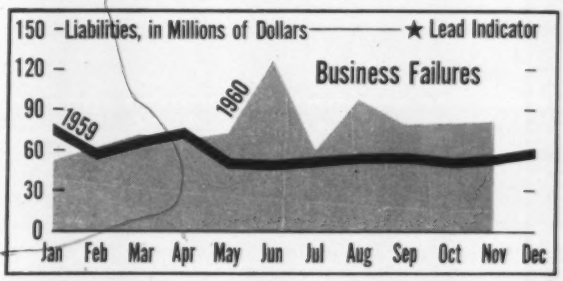
Total contracts for the month totaled $2.88 billion, compared with $2.37 billion a year ago. All three categories, non-residential, residential, and heavy engineering showed year-to-year gains.

Will Compacts Hold 1960 Pattern?

With compacts now an established part of the auto market, it's time to assess penetration. Sales of compacts and import cars in the U. S. will reach 2.1 million in 1960, a substantial figure. This includes about 500,000 imports. Overall, 1960 was a good year in sales, with 6,550,000 new cars sold, second only to 1955.

Business Failures Stay High

Business failures increased 4 pct in November, in terms of number of failures, and total dollar liabilities also increased. As the year drew to a close, total liabilities involved in failure in the first eleven months



of 1960 reached $859 million. This is well ahead of the comparative 1959 total of $633 million. The November figure is still well below the record-breaking month of June.

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Landis Study Suggests NLRB Reorganization

Report by James M. Landis to President-elect Kennedy on Federal regulatory agencies proposes reorganization of the National Labor Relations Board, including a return to the old Wagner Board administrative setup.

NLRB criticism centers on the division of authority between the Board and the General Counsel created by the Taft-Hartley Act. Mr. Landis notes that before the Taft Act, NLRB appointed its own counsel and handled all aspects of both unfair labor practice and representation cases.

It determined what cases to prosecute, conducted the prosecution, and rendered the decision. But the General Counsel now has authority to issue or withhold complaints in unfair labor practice cases and to control personnel, except legal assistants to board members.

Says Mr. Landis: "Friction between the General Counsel and the Board, so continuingly serious, is not likely to be significantly reduced. Their disparate positions are such that rivalry between them is inevitable."

Mitchell Will Head Rail Labor Study

Secretary of Labor James P. Mitchell moves out of office on Jan. 20—but not into the ranks of the unemployed. He has at least two jobs lined up already.

First, he has been named to head the Presidential Railroad Commission. Second, he will act as consultant to several companies.

He has been appointed to head the group of 15 representatives—from the nation's railroads, five operating unions, and the public—charged with seeking a solution to labor-management disputes.

Mr. Mitchell has also said he will open an office in New York around Feb. 15 "to provide consulting services to several industrial and business concerns."

Planning Changes? Get Them on the Record

Companies planning to change operations for economic reasons would do well to get that fact on the record while it is in the planning stages. And the earlier the better.

Memos, minutes of meetings, notes on phone conversations, etc. (with date and time noted) could serve as evidence of intent later—if needed.

Recently the Sixth Court of Appeals denied enforcement of an NLRB order requiring reinstatement of three employees who were released after they joined the Teamsters. Court found that the company had already decided to change to common carrier delivery of gasoline to its service stations for economic reasons.

It pointed out that the company was under no obligation to delay a change decided on before the union came in.

USW: No Contest

The race for leadership of the United Steelworkers, slated for later this month, will be a "no contest" affair.

Opposition to David J. McDonald, president, has collapsed. Challenger Donald C. Rarick, who polled 30 pct of the vote in 1957, failed to get the needed 40 local nominations.

Are Unions Getting Too Big?

Members of labor unions are showing increasing concern over the size and strength of unions. And there is a growing desire for close government regulation of union operations. However, the general public strongly supports unionism as an institution.

These are conclusions from Opinion Research Corp.'s latest survey in a series of trend studies on the labor movement.

Among union members questioned, 58 pct said unions currently are either large and strong enough or too large. In 1956, only 28 pct held this view.

Closer government scrutiny of unions was favored by 63 pct of union members questioned, compared with 60 pct of the general public who hold this view. While this attitude was held by 5 pct fewer union members than a year ago, it was 10 points higher than in 1957, and 16 points higher than in 1951-53.

On the other hand, says the report, there was strong support for the statement, "Labor unions are very necessary to support the working man."

Agreement came from 73 pct of the general public, 78 pct of white collar workers, 74 pct of stockholders, 69 pct of Republicans, and 67 pct of proprietors and managers.

Study covered 1439 adults, including 460 manual workers. Of these, 262 were union members and 198 were nonmembers. Additional data were obtained from a related study of 6038 interviews conducted in 1959, including 1634 union families.

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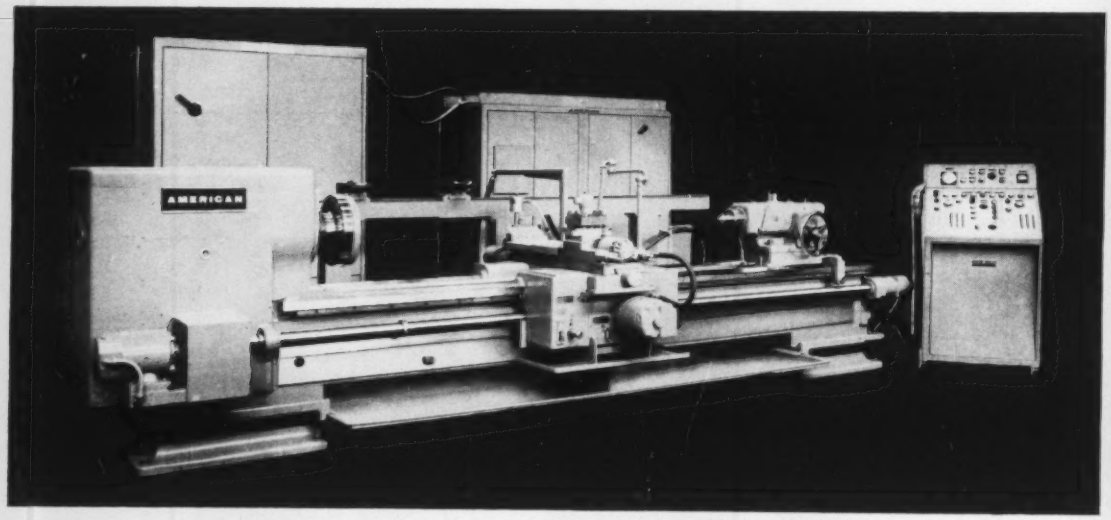

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★ Inside the "Landis Report"

A major aim of the proposed sweeping reorganization of Federal agencies is to restrict the activities of industries dealing with government regulators.

A report by James M. Landis to President-elect Kennedy specifically criticizes off-the-record approaches to the agencies by industry and a so-called "industry orientation" of agency personnel.

One step in the reorganization of such agencies as the Federal Trade Commission, says Mr. Landis, should be an order from the President telling government employees to "reject and refrain from receiving ex parte presentations in pending matters before them." He further suggests that these off-the-record approaches be made criminal offenses.

Mr. Landis, a former Federal agency member and an old friend of the President-elect's family, calls regulated industries the "worst source" of personal, off-the-record presentations.

He charges also that industry representatives have caused the agencies to become "industry oriented." This is a return of the old charge that "the regulatees have become the regulators."

Mr. Landis claims the problem of industry orientation relates to "those who are originally oriented toward the public interest but who gradually and honestly begin to view that interest more in terms of the private interest."

He says "Daily machine-gun-like impact" of industry representatives on both agency and its staff causes industry orientation.

Mr. Landis suggests Presidential direction to solve reorganization problems, including those dealing with regulated industry activity. Mr. Kennedy is expected to ask Congress for these powers.

■ Can Taxes Ease Economic Cycles?

The Council of Economic Advisers, to be given a new importance by John F. Kennedy, will back a long-range plan for tax reform to stimulate the nation's economy.

Walter W. Heller, newly designated chairman of the Council, advocates "exploration without commitment" of the possibility of putting Federal tax rates on a sliding basis. He feels this will permit flexibility in coping with inflation, as well as periods of economic downturn.

Mr. Heller believes the U. S. should go slow on tax changes, however. He would first try to stimulate the economy by more defense spending, easing housing credit, and such legislation as Federal aid to distressed areas, school construction and housing. This jibes with the thoughts of his boss, John Kennedy.

■ Conservatives Are Strong in Congress

The 87th Congress opened Tuesday with the Democratic leadership in complete control of the situation, with a clear majority in the House and Senate. And it looked as if it would be able to deal with major revolts by southern conservatives.

However, it is evident that the conservative coalition, composed of southern Democrats and Republicans, would still be a thorn in the liberal Democratic leadership's side.

■ Small Business Hopes Raised—Again

Reports that the small business share of military procurement money is getting smaller will give added impetus to moves to get small firms more defense contracts.

President-elect Kennedy, members of Congress, and the Small Business Administration have promised action to help small business get a bigger share of defense spending.

Small companies received only 14.8 pct of total military contracts in the first quarter of fiscal 1961 (July-Sept., 1960). This compares with 17.9 pct in the first quarter of the previous year. Research and development contracts let to small firms fell from 3 pct to 1.4 pct between the first quarters of fiscal 1960 and 1961.

■ Materials Research Called Inadequate

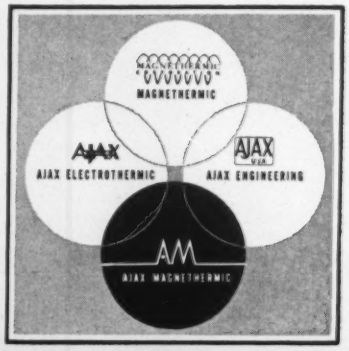
Congressional defense production experts say research into new and improved materials for U. S. defense is "inadequate."

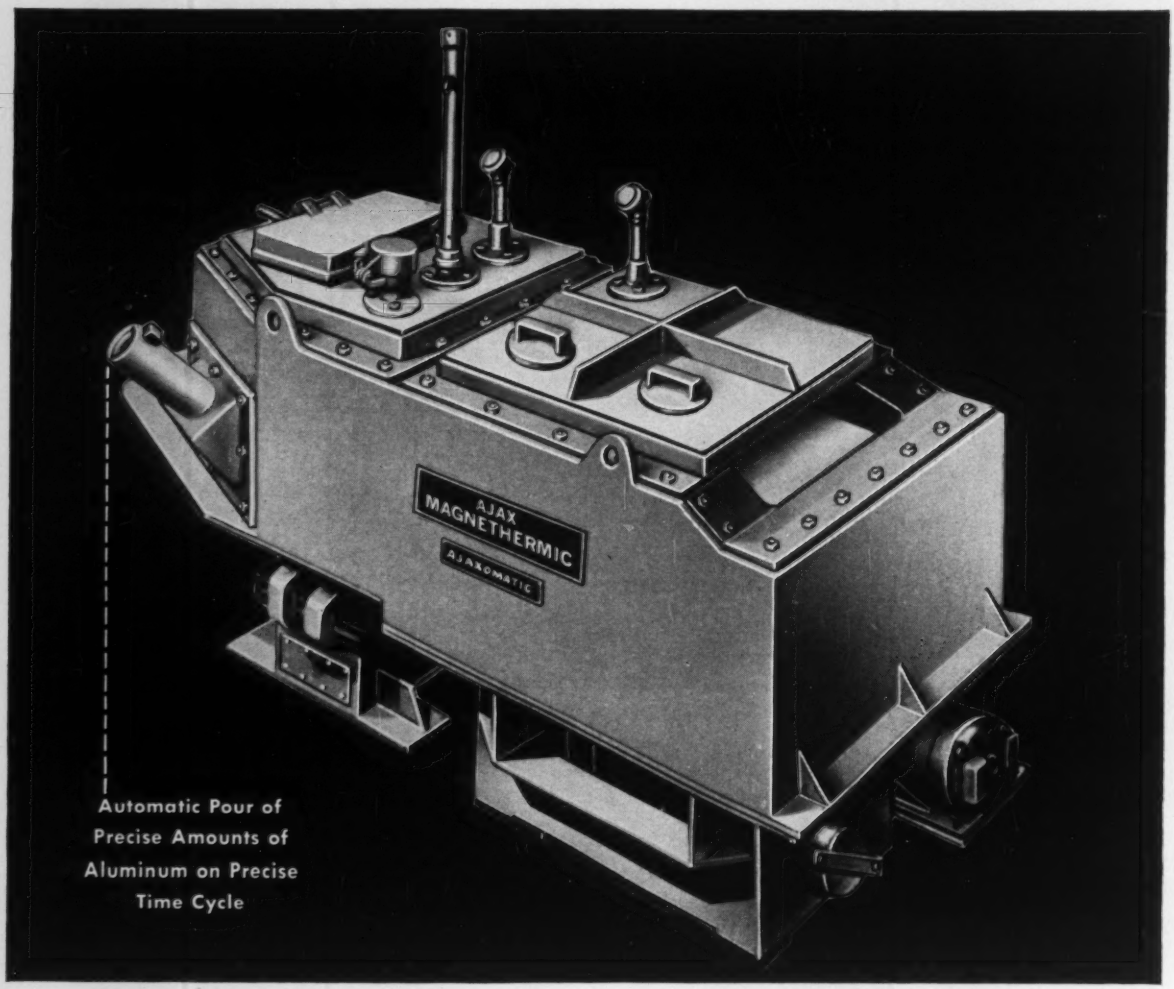
The joint Committee on Defense Production reports that basic research for high temperature materials "could be increased at least tenfold with amounts of money that are negligible compared with our defense budget."

The Committee points out that certain special property materials will be needed in significantly larger amounts between now and mid-1964. These include: Molybdenum, tantalum, columbium, bismuth, tellurium, titanium, platinum, palladium, and hafnium.

AJAXOMATIC pours molten aluminum automatically to die casting machines.

Use: Whenever high speed, high casting weight or high quantity requirements make hand ladling too slow or too costly. *How:* Ajaxomatic (60-cycle core type induction furnace) automatically supplies molten aluminum to the machine in any size "shot" on precise time cycle. *Experience:* There are many Ajaxomatics in use. Some of the largest die castings produced are poured with Ajaxomatic. *Inquiry:* Write direct to us for additional information on Ajaxomatic Automatic Pouring Furnace by induction.





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New Aluminum Plant For Venezuela

Plans are underway to build a $30 million aluminum reduction plant in the Caroni region of southeastern Venezuela. The plans were firmed when Reynolds International, Inc., recently signed an agreement with the Venezuelan government forming a corporation to build the plant.

Initial production capacity will be approximately 25,000 tons annually. About 80 pct of this capacity is expected to be consumed in Venezuela with the rest exported.

The agreement calls for Reynolds International to own 50 pct of the new facilities. The Venezuelan government will own the other 50 pct.

Foreign Investments Continue to Rise

Foreign investments by U. S. companies' branches and subsidiaries have climbed from $12 billion in 1950 to just more than $30 billion in 1960. And a full-scale study of this $30 billion has been released by the Office of Business Economics, Dept. of Commerce.

The result of two years of research, the report notes:

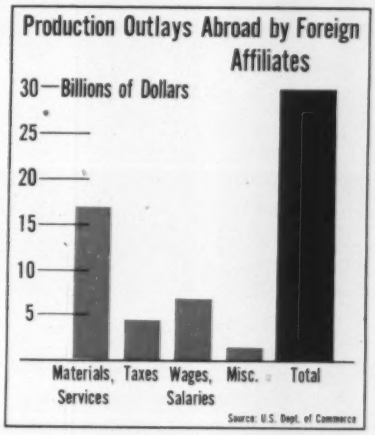
Canada has received about one-third of U. S. foreign investments. Latin America is receiving a "somewhat smaller amount," and Europe, with present expenditures around $5 billion, is the area of most rapid expansion.

Investments for manufacturing facilities are growing. They are now almost as large as petroleum investments—the leader for more than a decade.

Aggregate production of commodities by U. S.-owned facilities abroad has increased from $32 billion in 1957 to $35 billion in 1960. Sales of foreign manufacturing affiliates rose nearly 15 pct from 1957 to 1959 and now exceed $21 billion.

More than three million foreign workers are employed by these companies.

And, almost three-fourths of the direct foreign investments are in companies where the U. S. share is 95 pct or more. Better than half of the investment total is held by 45 parent companies.



More Capital Spending

Volkswagen of America, in anticipation of sales of nearly 200,000 units in 1961, plans to increase its capital spending in this country.

The German automaker says additional purchases of American raw materials and machine tools are planned. In 1959, VW bought $4 million worth of American sheet steel and $26.5 million worth of machine tools. Substantial amounts were also spent on other products.

U. S.-USSR Trade Defies Cold War

Washington foreign trade experts are predicting that Soviet-U. S. trade will grow larger in the near future. They say 1960 figures show it to be the biggest trade year between the two countries in over a decade.

Final trade figures are expected to show U. S. exports to Russia jumping four times the 1959 export total of $7.4 million. U. S. imports from the Soviet Union are expected to remain about the same.

The U. S. export expansion program is expected to keep U. S.-Soviet trade at high levels despite continued cold war activities.

Iran Studies Steel Possibilities

Kaiser Engineers and Constructors, Inc., Oakland, Calif., has been appointed by the Steel Corp. of Iran to assist in the planning of new steel plant facilities.

The contract, signed recently, includes the preparation of a comprehensive report and analysis covering all phases of potential steel facilities. This includes raw materials, location, market, products and processes, preliminary design, construction and operating costs, as well as financial requirements.

Thus far, almost all of Iran's steel requirements have been met by imports. The United States has been one of the chief suppliers.

Hodges Will Push Export Activity

The drive to boost U. S. exports will be intensified by Luther H. Hodges, the new Secretary of Commerce. He believes the U. S. should "redouble its efforts toward international trade."

Redoubling, Mr. Hodges says, should come via export expansion and more tourism in the U. S. by foreigners.

Foreign sales of U. S. goods and visits to this country both help to bring back American dollars.

NEW DEPARTURES IN MINIATURE

ULTRA-CLEAN INCUBATORS FOR M/I* BALL BEARINGS

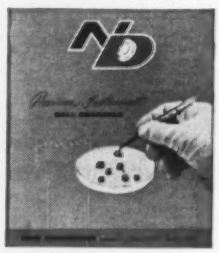
N/D'S NEW WHITE ROOM PROVIDES ULTRA-CLEAN ENVIRONMENT FOR M/I BALL BEARING ASSEMBLY

N/D announces a new White Room at Sandusky, Ohio incorporating the latest technological advances available today. This new room provides a virtually dust-free atmosphere so necessary for the production of Miniature and Instrument Ball Bearings of high reliability.

Environmental controls within the room hold temperature to plus or minus 1°... with maximum relative humidity only 40%. Final air filtration into room removes particles larger than 3/10 micron. A complete air change is made every three minutes. All authorized personnel entering the room are thoroughly bathed by air showers in two successive deduster chambers.

You can benefit from New Departure's 25 years of experience in M/I ball bearing production by calling your nearby N/D Sales Engineer. Or write Department L.S., New Departure, Division of General Motors Corporation, Bristol, Conn.

*Miniature and Instrument Ball Bearings.



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NEW DEPARTURE

MINIATURE AND INSTRUMENT BALL BEARINGS

Yields Molybdenum Oxides

An acid process transforms low-grade molybdenum-sulphide concentrates into high-grade molybdenum oxides. These oxides serve as alloying agents in steelmaking. When the concentrates are roasted at 1900°F, the volatile oxides form. They're collected in a bag filter as a fine lightweight powder. Purity is 99 pct. This new process handles the treatment of low-grade concentrates that couldn't be treated by previous methods.

Automate Big Structurals

Structural fabrication took a giant stride forward with a mechanized-handling system for sections up to 80 ft long. This system, used in a midwest plant, applies automation to welding, drilling, reaming and painting of structural members. Numerical-drilling setups yield the biggest reduction in production costs.

Machine Swages Tappets

An automatic machine swages the ends of valve-tappet rods made from carbon-steel tubes. Cut-to-length tubes are fed into a drum which dispenses them to the swaging device. The latter consists of a roller that carries the tubes and two profiled rollers which press against the tube ends until they close. This machine automatically swages and hardens 600 tappets per hour.

Integrated Diecasting

A new diecasting machine turns out complex aluminum-cylinder blocks weighing up to 51 lb. This Italian machine is integrated with a melting furnace, automatic degassing and ladling units and an ejection device. At the end of the process there's an automated die-trimming press.

Metalcutting Data Center

A new data center, which will furnish information on proper cutting speeds and feeds for all metals and alloys used in metalcutting operations, will soon be opened. Most of the data are based on information developed for military projects. However, the parent research organization is expected to offer these facts to industry. This should prove helpful in obtaining standard time-and-cost figures for production work. It could also be useful in programming numerical machines.

Extends Lathe-Clutch Life

The Russians use cermet-coated metal disks in lieu of bronze clutch plates on multispindle chucking lathes. It's reported that these coated disks last five times longer than bronze plates. In oil, the coefficient of friction for each disk is 0.12. Each disk consists of a thin copper-plated steel sheet, covered with graphite powder, pressed between two cermet sheets.

Explosives Break Up Scrap

Several British companies use explosives to break faulty or worn-out castings, particularly large ones, into little pieces. By using small explosive charges, these companies reduce the amount of space needed to store defective castings prior to remelting or final disposal. The cost aspect also appears to be promising.

Coolant for Tough Alloys

Until now, heavy-duty machining has depended upon reinforced-petroleum oils. But a new water-soluble coolant has entered the field. This newcomer has a high sulphur and chlorine content. Thus, it insures good anti-weld properties. When mixed with water, the synthetic base provides a stable emulsion for long periods of continued use. Recommended uses include treading, tapping, stamping and drawing of tough alloy steels.

Improve Low-Alloy Steels

Advances in basic-electric and basic-induction atmospheric and vacuum steelmaking practices prove out the need for low phosphorus and sulphur contents in cast low-alloy steels. The ductility and the toughness of these steels hinge on phosphorus and sulphur contents. Other mechanical properties of heat-treated castings also vary with the amount of sulphur present in the steel.

General Foreman—Kennametal Carbide Engineer—Machine Operator

3-man team solves operating problem

. . . changed to fast-indexing insert tooling —speeded production—reduced costs

PROBLEM: High cost of production due to slow operation, tool breakage, and tool grinding.

SOLUTION: Job study by 3-man team recommended change from brazed-tip tools to Kennametal* throw-away insert type tooling.

RESULT: Stepped-up speeds and feeds, improved chip control, increased tool life, eliminated tool grinding—reduced cost of job 40%.

That's the kind of product and service you can get through your Kennametal carbide engineer. Thoroughly trained in carbide products, he devotes his time exclusively to the sale and application of Kennametal hard carbides . . . and is well qualified to provide on-the-spot analysis and recommendations. If your job requires unusual or special design engineering and application service, your Kennametal man will make our headquarters engineering and manufacturing facilities available.

Depth of on-the-job experience—plus the continuing development of a variety of tungsten, titanium, and tantalum carbide grades—has lead to the use of Kennametal compositions in practically every industry. And our product development group, by working in close cooperation with design engineers, sales engineers and customers, keeps coming up with new products and new applications—engineered and developed to meet both general and specific customer requirements.

We believe you will be interested in our booklet, "There's Profit in Retiring a Tradition," which gives facts on how some companies have reduced machining costs as much as 70 per cent. Based on actual cases, it makes practical and profitable reading. Ask your Kennametal Carbide Engineer for a copy . . . or write direct to KENNAMETAL INC., Dept. IA, Latrobe, Pa.

*Trademark

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Well Done

Sir—It was with a great deal of interest that I noted your editorial on p. 5 of the Dec. 15 issue of your good publication ("Communications Crisis: It's Worse Than You Think"). A very well done piece! In fact, it was of enough interest to prompt us to ask you if you would please send us several tear sheets of same.—Owen J. Crumb, Chapman-Nowak & Associates, Inc., Syracuse, N. Y.

■ **The tear sheets are in the mail.—Ed.**

Machining Methods

Sir—Your article on Special Machining Methods in the Dec. 8 issue of The IRON AGE is excellent and I should like to supply a copy to each of our power sales engineers. Can I obtain seven copies? —John R. Parker, Southern California Edison Co., Los Angeles, Calif.

Sir—This is an excellent article and we would like to have copies for our library.—Cedric Sun, Wah Chang Corp., New York, N. Y.

Sir—We would like reprints of this very informative article—Karl E. Katz, The Ashcombe Co., York, Pa.

Sir—We have enjoyed this article very much.—D. E. Farkas, Chrysler Corp., Detroit, Mich.

Sir—The article has special interest to us. If you can spare six copies we would appreciate them very much. This would provide one copy for each of the key engineers in our research library.—Russell A. Yeo, General Electric Co., Cincinnati, O.

Sir—Congratulations on a well-written, timely article. — H. W. Reno, Amphenol-Borg Electronics Corp., Broadview, Ill.

■ **All requests for reprints are in the mail.—Ed.**

Top-Notch

Sir — E. C. Beaudet's article "Growth: How Much, What Price?" which appeared in the Dec. 8 issue of The IRON AGE was extremely interesting and helpful. It's just another case of top-notch industrial news coverage and analysis by the editors of your magazine. Keep up the fine work. Can I get several reprints of this article?—Joseph McGinnis, Waynesboro, Va.

■ **They're on the way.—Ed.**

Capacity Up

Sir—Just to keep the record straight, we would like to bring to your attention a typographical error that appeared in Your Oct. 20 issue in the chart "Where Vacuum Melting Capacity is Located." Capacity for Haynes Stellite Co. should have been 3,220,000 pounds per year rather than 322,000 pounds per year. This applies to the yearly capacity from our vacuum melting facilities. — D. L. Jeka, Haynes Stellite Co., New York, N. Y.

■ **We are glad to bring Haynes Stellite's capacity up to the correct figure.—Ed.**

A Success

Sir—I want to congratulate you on the fine editorial on Treasury Secretary Robert Anderson ("Mr. Anderson's Mission: Was It a Dismal Failure?"). I heartily agree with you that Mr. Anderson's mission was a tremendous success and that news writers have unfairly maligned him probably as a result of their own failure to comprehend the necessity for bringing some of these facts home to the public of this country.—William H. Webb, Webb, Mackey & Burden, Pittsburgh, Pa.

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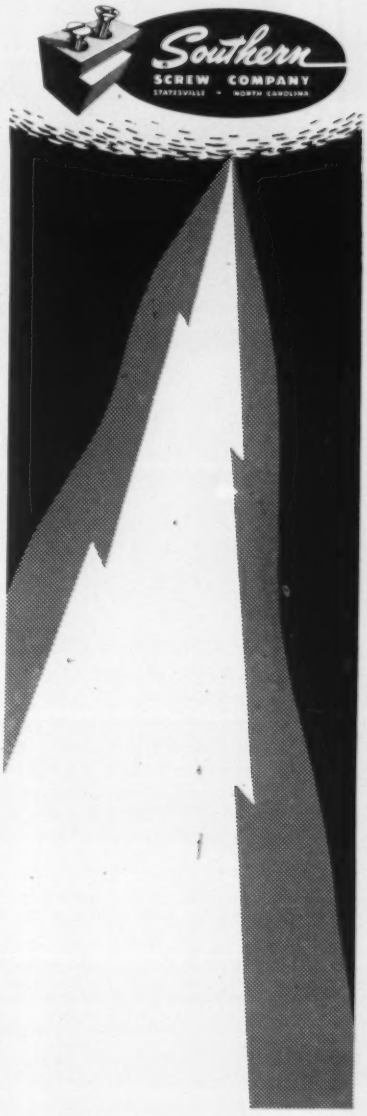

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There are four practical reasons behind our claim that *you just can't buy better fire-resistant hydraulic fluids or air compressor lubricants than Celanese Cellulubes.*

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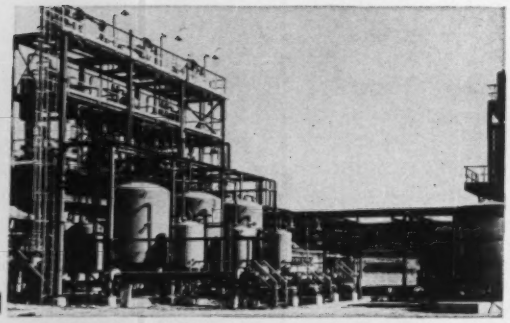

BASIC PRODUCER—Celanese was the *first* to produce phosphate esters . . . and is the *only* producer currently marketing a series of industrial phosphate ester lubricants. Experience has demonstrated that we now have one of the best equipped plants in the country.

2

APPLICATION ENGINEERING—Our files contain facts about hundreds of successful Cellulube applications in many industries. Celanese engineers have the experience and interest to help you make the most of these functional fluids.

3

QUALITY CONTROL—Celanese zealously guards the quality of Cellulubes by a system of constant checks and controls. Physical and chemical properties are strictly maintained within exacting limits to assure you of optimum performance for fire-resistance and lubrication. What's more, Cellulubes have passed the most rigorous tests that the military and some of America's largest companies could devise.

4

TECHNICAL ASSISTANCE—Our technical staff provides assistance to see that the changeover from conventional fluids to Cellulubes is made as quickly and easily as possible. In many cases, our salesmen provide all necessary conversion know-how.

Fire-resistant Cellulubes are available in *six* controlled viscosities. Not only are they outstanding for the prevention of fire and explosion, but they give overall wear protection comparable to premium petroleum oils. Get the complete facts by using the coupon below. Celanese® Cellulube®

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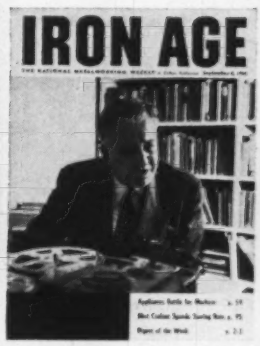
FATIGUE CRACKS

Foreign Threat



Management

Business Issues

National Goals

Dollar Series

Capital Goods

IA Highlights of '60

This week you'll find our 106th Annual Issue jampacked with business forecasts for New Year, 1961.

But in wrapping them up, the editors could not help looking back on some of the outstanding features of the Old Year, 1960.

Nothing could top the interest generated by the 1960 presidential elections. The IRON AGE covered the business issues in two exclusive interviews with GOP Platform Chairman Charles H. Percy and Democratic National Committee Chairman, Sen. Henry M. Jackson.

Management Issues — Human problems are always with us and 1960 was no exception. But Dr. F. J. Gaudet's series on the causes for executive success or failure was exceptional. It drew the biggest reader reaction of the year.

Foreign competition became more intense in 1960. The problem was put into perspective for The IRON AGE at midyear by David Rockefeller, then vice chairman of The Chase Manhattan Bank, and other Chase foreign-trade experts.

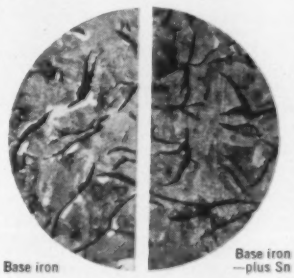
Technology was moving ahead in 1960 and so was our staff's reporting of it. Our Metalworking Dollar series continued as strong as ever. A 16-page report on Special Machining Processes rounded out the fifth successful year for the series.

Industry Spending — Close tabs were kept on the direction of capital goods spending throughout 1960 by quarterly surveys of metalworking capital appropriations conducted for The IRON AGE by the National Industrial Conference Board.

One of the most important documents to come out of Washington in 1960 was the nonpartisan report of the president's Commission on National Goals. The IRON AGE brought readers the business aspects before any weekly magazine and was out with its interpretive cover story a scant two days after the story hit the front pages.

Straits Tin Report

Tin reduces wear—The addition of up to 0.1% tin has a marked effect in eliminating ferrite from the matrix of both gray and nodular irons, producing a wear-resistant fully pearlitic matrix.



Effect of tin on pearlite in microstructure of hypo-eutectic cast iron bar, 1.2-in. dia.

The amount of tin added to cast iron sections up to 3 in. thick is not critical. A reasonable excess does not produce any massive cementite or affect mechanical properties.

Organic compounds of tin stabilize vinyl chloride polymers to inhibit color at high temperature and to protect against decomposition during processing and degradation in service.

Low linear contraction is a property of high tin content die-casting alloys. Tin alloys shrink very little, permitting close tolerances and very thin walls in such typical small castings as pinions, numbering machine wheels, dashpots of electrical instruments, and gas meter grid valves.

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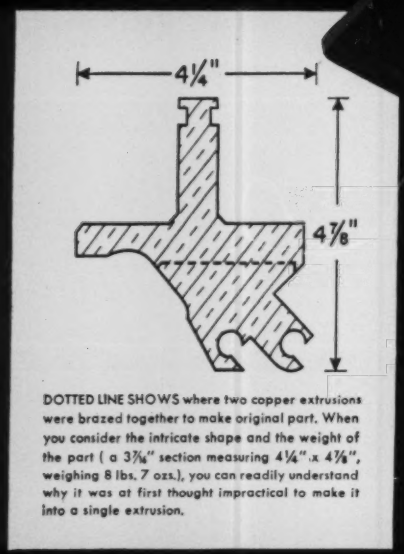
AGAIN-



DOTTED LINE SHOWS where two copper extrusions were brazed together to make original part. When you consider the intricate shape and the weight of the part (a 3⅞" section measuring 4¼" x 4⅞", weighing 8 lbs. 7 ozs.), you can readily understand why it was at first thought impractical to make it into a single extrusion.

Revere helps "fit the metal to the job"

AND ONE COPPER EXTRUSION REPLACES TWO, SAVING TIME AND MONEY WITH CONSIDERABLE INCREASE IN LIFE OF PART

The Revere Copper Extrusion shown above was originally two extrusions brazed together. And, since it is quite an intricate shape, and weighty, it was at first thought impractical to make as a single extrusion, but the possibility was believed to be worth investigating.

Through close collaboration between the manufacturer's engineering department and the Revere Methods and Production Departments, it was found possible to combine these two sections into a single extrusion. Work was started, dies were made and test runs conducted. The tooling (for hot extrusion was followed by cold drawing) posed special problems. It had to be both rugged and precise in order to produce this monster to the manufacturer's exacting specifications. Finally, a sample extrusion was delivered to the customer for testing and found to be right in every way.

Not only does this new, single extrusion eliminate a great deal of machining but obviates the necessity of purchasing two separate extrusions and brazing them together. This means substantial savings in dollars and time involved, plus a longer-lasting part, because the heat required to join the two pieces originally used, tended to soften the built-up unit, thus shortening its useful life.

So, before you give up on what at first may seem an insoluble problem, why not call in Revere's Technical Advisory Service? It's entirely possible they can help you "fit the metal to the job" with a resultant saving in the production of a superior product.

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COMING EXHIBITS

Plant Maintenance & Engineering Show — Jan. 23-26, International Amphitheatre, Chicago. (Clapp & Poliak, Inc., 341 Madison Ave., New York 17.)

International Heating & Air-Conditioning Show—Feb. 13-16, International Amphitheatre, Chicago. (International Exposition Co., 480 Lexington Ave., New York 17.)

MHI Pacific Coast Show—Feb. 22-24, Cow Palace, San Francisco. (Material Handling Institute, Inc., One Gateway Center, Pittsburgh 22.)

Western Metal Show—March 20-24, Pan Pacific Auditorium, Los Angeles. (American Society for Metals, Metals Park, Novelty, O.)

MEETINGS

JANUARY

The Institute of Scrap Iron & Steel, Inc.—Annual convention, Jan. 8-11, Hotels Fontainebleau and Eden Roc, Miami Beach, Fla. Institute headquarters, 1729 H St., N. W., Washington 6, D. C.

Aluminum Window Mfrs. Assn.—Annual meeting, Jan. 9-12, Emerald Beach Hotel, Nassau, Bahamas, Association headquarters, 630 Third Ave., New York.

Society of Automotive Engineers, Inc.—Annual meeting, Jan. 9-13, Cobo Hall and Convention Arena, Detroit. Society headquarters, 485 Lexington Ave., New York, N. Y.

Hoist Manufacturers Assn., Inc.—Annual meeting, Jan. 10, Statler Hotel, Cleveland, Association headquarters, One Thomas Circle, Washington.

Steel Shipping Container Institute, Inc.—Winter meeting, Jan. 17-18, St. Regis Hotel, New York. Institute headquarters, 600 Fifth Ave., New York.

Steel Plate Fabricators Assn.—Annual meeting, Jan. 18-20, Logo

(Continued on P. 24)

"CALL FOSTER... THEY'LL SHIP PIPE PLUS"

Right! Whether it's a routine order or an emergency request for unusual or hard-to-get sizes, Foster gives you pipe "*plus*."

You get all your pipe when and where you need it, cut to length or fabricated in complete-package shipments, at lowest possible cost.

For non-pressure applications, check the unusual savings on Foster Structural Pipe. Foster's nationwide warehouses stock Tested & Structural Steel Pipe, 1/8" through 48" in all sizes and walls—"*plus*" Stainless, Seamless, Alloy, Pressure, Aluminum, Wrought Iron, PVC Pipe and Valves, Fittings, Flanges.

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Portable "service center"

Hundreds of companies have saved money, improved products and cut production waste as the result of opportunities presented by the Ryerson "Metalogikit."

How? This unique kit is a veritable portable service center...lets you explore many alternatives to material you now use. For example, you can compare several different cutting methods on the same piece of steel to see which is best for your application.

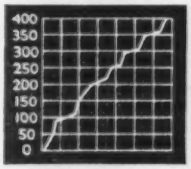
Following are a few random examples showing how Ryerson specialists, using the Metalogikit, have helped customers with a variety of problems—many similar to those you may face every day.

If you would like to put the Ryerson Metalogikit to work for you, call your Ryerson representative for a demonstration—for unbiased recommendations on steel, aluminum, plastics and metalworking machinery.

sparks new ideas and savings

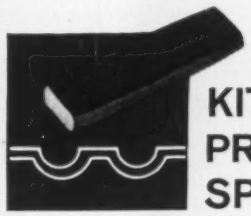
KIT SPOTS SAVINGS

Scratches and grooves normal to cold drawn, seamless tubing caused high manufacturing costs for a company making small, light-wall hydraulic cylinders. The small I.D. had to be honed to eliminate these faults—often too much metal was removed for proper piston fit. A Ryerson specialist suggested a switch to *welded tubing*. Using a sample from his Metalogikit, he pointed out the better finish that eliminates expensive honing. The switch was made with these results: higher production, low reject rate, improved product—plus lower purchase price per foot of tubing.



METALOGIKIT TURNS UP 400% PROFIT

Bidding on a routine job was delayed for one steel fabricator because of an unusual material requirement in the specs—calling for an insulating block of phenolic laminate. For help, the company turned to its Ryerson representative, who showed a sample of Ryertex® sheet stock from his Metalogikit. In addition to having the material available from stock, he was able to show how easily it could be fabricated. This Ryerson know-how, demonstrated by the Metalogikit, enabled the customer to enter his bid on time. He got the job, and made a 400% profit.



KIT SUGGESTS PROFITABLE SPEC CHANGE

Fractures and rejects were extremely high for a manufacturer cold forming two severe bends in flat, hot rolled bars. A Ryerson specialist examined the ⅜″ x 2″ bar stock and compared it with a sample of M-1020 flattened round bar from his Metalogikit. He explained how controlled carbon of Ryerson M-1020 bar would produce great cost-saving advantages in this operation over hot rolled, mild steel. After specs were changed to this Ryerson-supplied bar, fractures and rejects were substantially reduced—resulting in new profitability.

STAINLESS FROM KIT LEADS TO SAVINGS

This company had an emergency requirement for stainless sheets. Application had always called for Type 304, 16 ga. x 66″ x 81″, *polished on one side*. Their Ryerson specialist questioned the need for polishing. From his Metalogikit, he showed them a sample of 304 with a 2B finish. The company readily agreed it was exactly the finish needed *without polishing*—saving delivery time and material cost. The Ryerson man further suggested 16 ga. x 72″ x 144″, using the cut-off pieces for another job—reducing scrap waste on *both* requirements. Order was placed and delivered in plenty of time. Over-all result: a substantial saving.

METALOGICS
RYERSON PLUS VALUES

STEEL • ALUMINUM • PLASTICS • METALWORKING MACHINERY

RYERSON STEEL

Joseph T. Ryerson & Son, Inc., Member of the INLAND® Steel Family

PLANT SERVICE CENTERS: BOSTON • BUFFALO • CHARLOTTE • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DETROIT • HOUSTON • INDIANAPOLIS
LOS ANGELES • MILWAUKEE • NEW YORK • PHILADELPHIA • PITTSBURGH • ST. LOUIS • SAN FRANCISCO • SEATTLE • SPOKANE • WALLINGFORD

NEW . . . ALL NEW . . . FROM

KALAMAZOO

The "BIG K"

Now, after more than four years' research, Kalamazoo brings to you the all new Model 14A — horizontal metal cutting bandsaw. Incorporating some 30 shop proven, cost saving features, this hydraulic driven, heavy duty bandsaw offers cutting capacity and ability in excess of any cut-off method, at far less tool cost per square inch of cutting.

Most important among these profit producing features are: positive control force feed; clockwise blade rotation to reduce teeth shock — increase blade life; convenient 36" machine height to reduce operator fatigue; large 14" x 24" capacity; push button control; dual movable vise jaws; adjustable blade tension.

For complete details on this amazing new machine tool, phone, write or wire your Kalamazoo representative. Facilities for test runs of your material on the "Big K" are at your disposal — at no obligation.

MACHINE TOOL DIVISION
Kalamazoo Tank & Silo Company

508 Harrison St.
Kalamazoo, Mich.

MEETINGS

(Continued from P. 21)

Mar Hotel, Fort Lauderdale, Fla. Association headquarters, 105 W. Madison St., Chicago.

Industrial Heating Equipment Assn., Inc.—Annual winter meeting, Jan. 23-24, Dearborn, Mich. Association headquarters, 2000 K St., N. W., Washington, D. C.

Instrument Society of America — Annual meeting, Jan. 23-25, Hotel Astor, New York. Society headquarters, 313 — 6th Ave., Pittsburgh.

Society of Plastic Engineers, Inc.— Annual technical meeting, Jan. 24-27, Shoreham & Park Sheraton, Washington, D. C. Society headquarters, 65 Prospect St., Stamford, Conn.

National Tool & Die Manufacturers Assn.—Winter board meeting, Jan. 24-28, Biltmore Hotel, Palm Beach, Fla. Association headquarters, 907 Public Square Bldg., Cleveland.

Metal Lath Manufacturers Assn.— Meeting, Jan. 25-26, Pick-Carter Hotel, Cleveland. Association headquarters, Engineers Bldg., Cleveland.

Cutting Tool Manufacturers Assn. —Annual business meeting, Jan. 26, Harmonie Club, Detroit. Association headquarters, 1216 Penobscot Bldg., Detroit.

National Assn. of Secondary Material Industries, Inc.—Midwestern Div. regional meeting, Jan. 26, Statler-Hilton Hotel, Detroit. Association headquarters, 271 Madison Ave., New York.

Truck-Trailer Manufacturers Assn., Inc.—Annual convention, Jan. 29-Feb. 1, Hollywood Beach Hotel, Hollywood, Fla. Association headquarters, 710 Albee Bldg., Washington, D. C.

Steel Kitchen Cabinet Manufacturers Assn.—Midyear meeting, Jan. 31, Sheraton Towers Hotel, Chicago. Association headquarters, 910 Park Bldg., Cleveland.

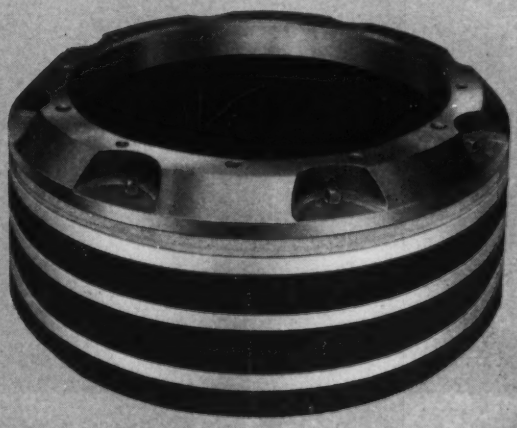
REDUCE DOWN TIME

with Gardner tape bound cylinder wheels

continuous, uninterrupted production

eliminates operator hazard

higher strength with tapes an integral part of wheel



Glass fibre tapes grind away as wheel wears . . . eliminate production stoppages required for removal of wire binding.

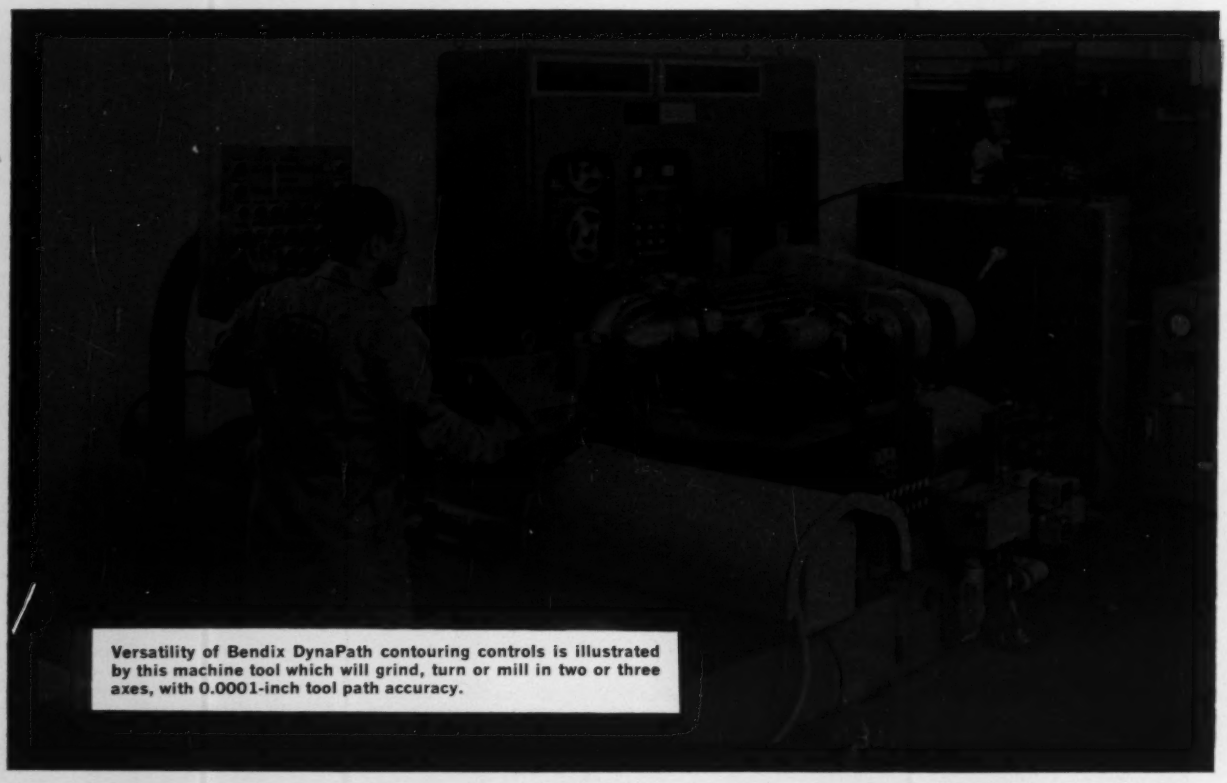
GARDNER

abrasive discs

BELOIT, WISCONSIN

BENDIX PROVIDES SYSTEMS EXPERIENCE TO MAKE NUMERICAL CONTROL WORK FOR YOU

Numerical control is a proved concept in metalworking. It has demonstrated its worth in scores of applications, but perhaps your manufacturing problems are different. Why not enlist the services of Bendix—long-time supplier of practical, reliable numerical control systems to most major machine tool builders. Let us be your prime source of information and assistance when the demand for increased productivity indicates a need for more modern equipment that will reduce scrap, reduce lead time, reduce inventory costs, and reduce tooling costs. Whether it's contouring, positioning or measuring, Bendix has the solution to your particular problem.



Versatility of Bendix DynaPath contouring controls is illustrated by this machine tool which will grind, turn or mill in two or three axes, with 0.0001-inch tool path accuracy.

YOU NEED BENDIX SYSTEMS EXPERIENCE when you consider numerical control for your application! Bendix offers:

1 JUSTIFICATION STUDIES—what can numerical control do for you?

2 SYSTEM ENGINEERING—applying the right control to the right machine tool.

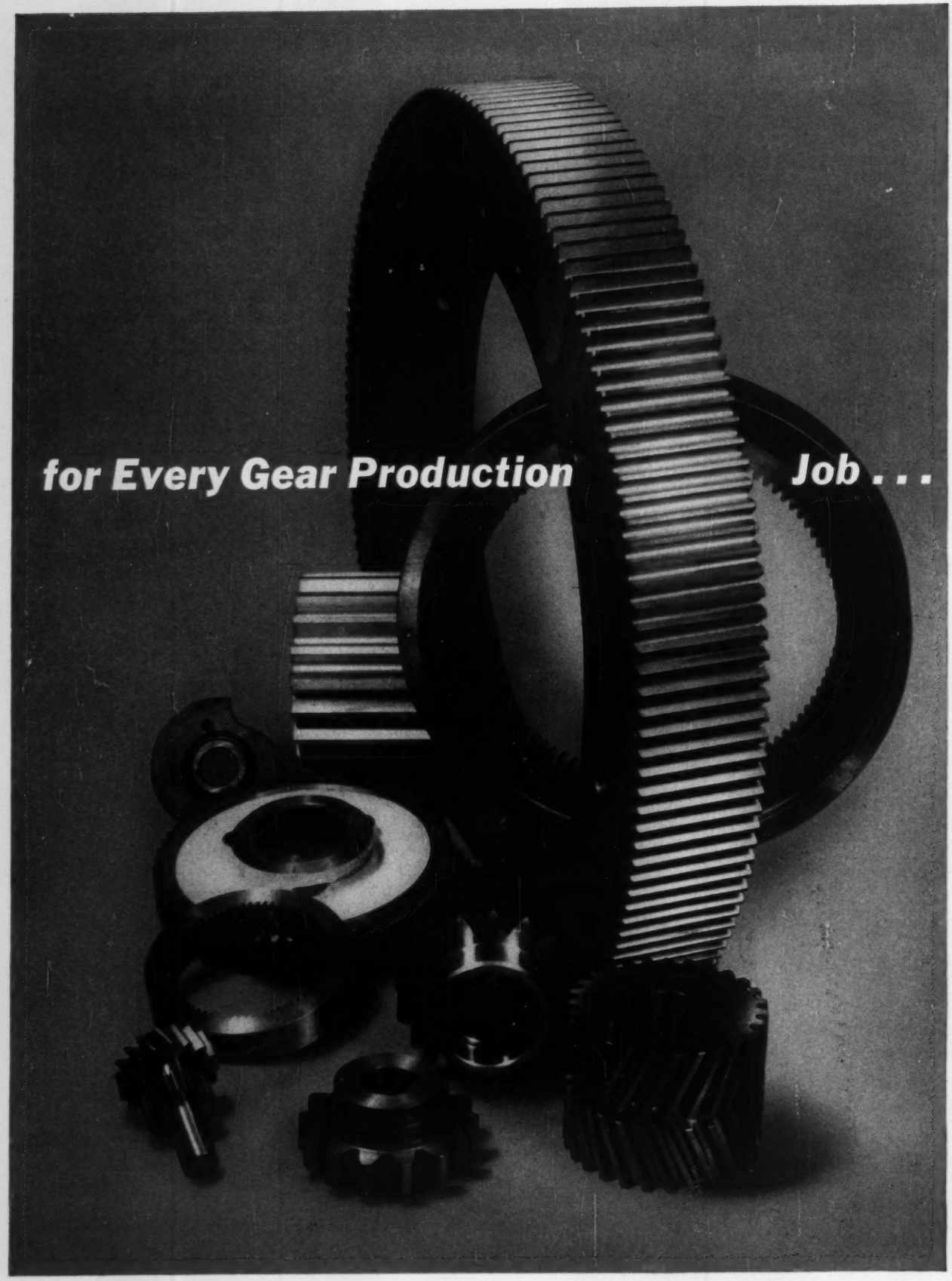
3 TRAINING AND SERVICE—for maximum machine utilization rates.

The unique Bendix Systems Experience is backed up by a staff of experienced electronic, mechanical and hydraulic engineers, mathematicians, instructors, technicians, and parts planners. Our contract machining and tape-making facilities offer years of accumulated case histories on all manner of applications *and* a chance to check out *your* problems in actual practice. Why not write today for more information on Bendix Systems Experience.

Industrial Controls Section
21820 Wyoming Ave., Detroit 37, Michigan

THE Bendix CORPORATION

Bendix
SYSTEMS EXPERIENCE
For tool room work, Bendix DynaPoint positioning systems can hold 0.0001-inch tolerances on this jig borer.

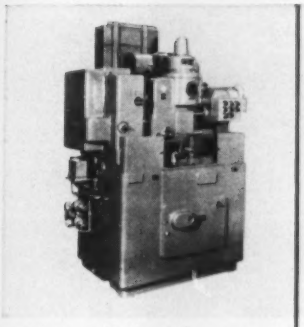

for Every Gear Production Job . . .

Right from the blank to the finished external or internal spur or helical gear, Fellows has the complete line of gear production and inspection equipment to meet all your requirements!

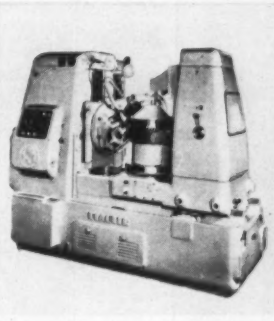
No other builder in the world offers as long and varied a line: Fellows Gear Shapers; Pfauter Gear Hobbers; Fellows-Reishauer Gear Grinding Machines; Fellows Gear Inspection Instruments; Fellows special machines and attachments; Fellows Gear Shaper Cutters. All this, *plus* the benefit of our sixty years of specialized experience in solving gear production problems.

Ask your Fellows representative for information on the complete line of Fellows gear production and inspection equipment. If you have a problem requiring special equipment, ask him to help you solve it, or write direct.

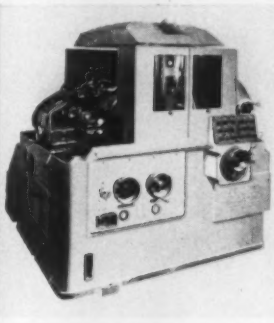
. . . . Fellows Has the Equipment to Shape, Hob, Grind and Inspect



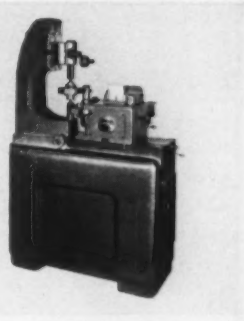
Fellows Gear Shapers cut internal and external spurs and helicals; capacities to 120″ P.D.



Pfauter Gear Hobbing Machines for spur and helical gears; capacities to 120″ P.D.



No. 12 Fellows-Reishauer Gear Grinding Machines grind spurs and helicals to 12″ O.D.



No. 20M Fellows Red Liners make and record the "composite check" of spur and helical gears to 18″ P.D.

THE FELLOWS GEAR SHAPER COMPANY
78 River Street, Springfield, Vermont

Branch Offices:
1048 North Woodward Ave., Royal Oak, Mich.
150 West Pleasant Ave., Maywood, N. J.
5835 West North Avenue, Chicago 39
6214 West Manchester Ave., Los Angeles 45

THE PRECISION LINE *Fellows Gear Production Equipment*

These sound castings made sound products

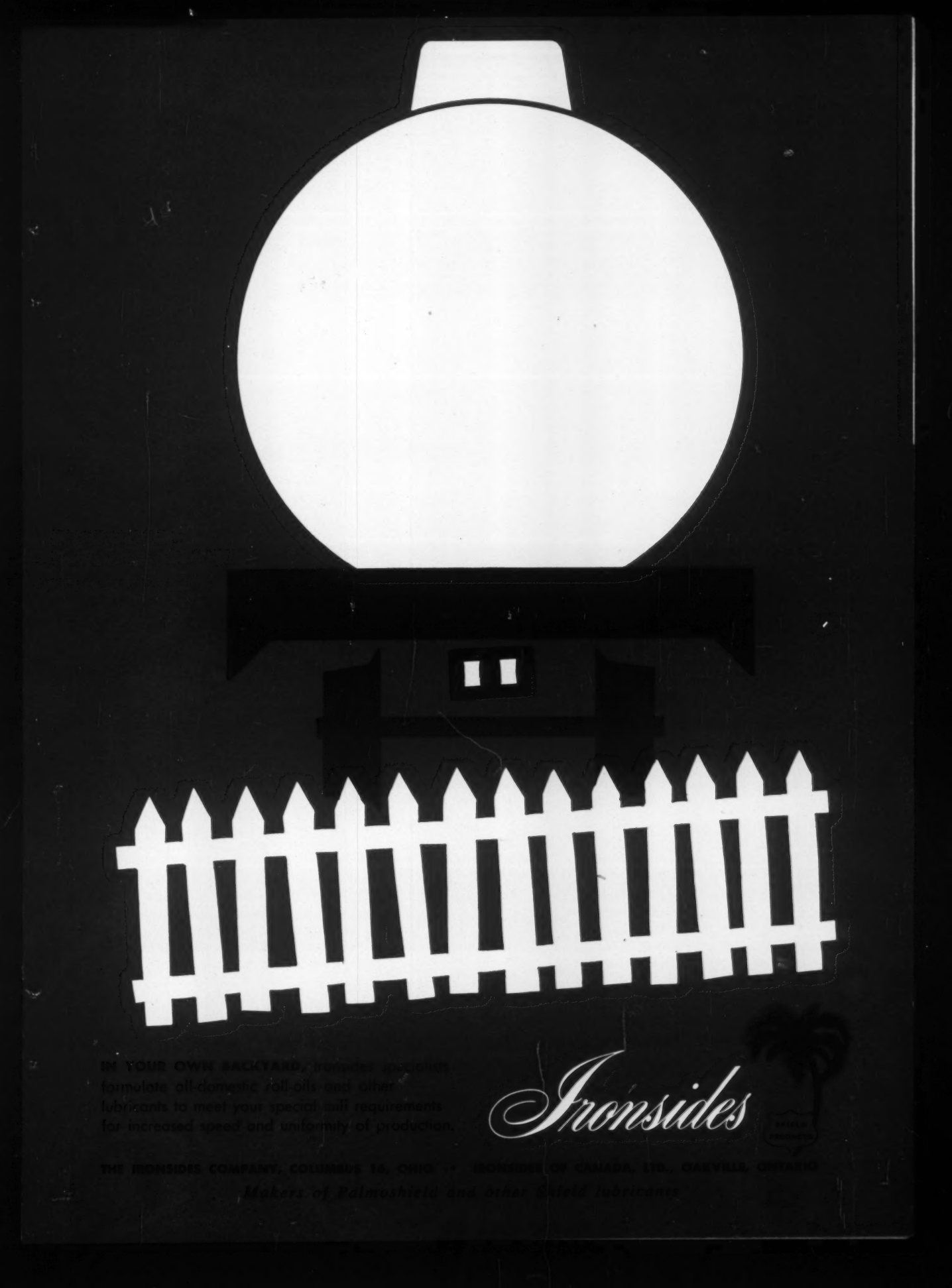
Gray and alloyed iron castings are continually being called upon to do more exacting jobs. Parts are now designed and cast to meet strength and weight standards precisely. Over-design or "rule-of-thumb" casting procedures mean penalties in weight, size or cost. Under-design or casual production controls reduce quality and dependability of the end product.

These castings were engineered to specifications at The Decatur Casting Company where high quality standards govern every step of the production process. Heat treating, when required, was done in our own furnace. The customers ordered castings to specification—and got what they ordered in every casting.

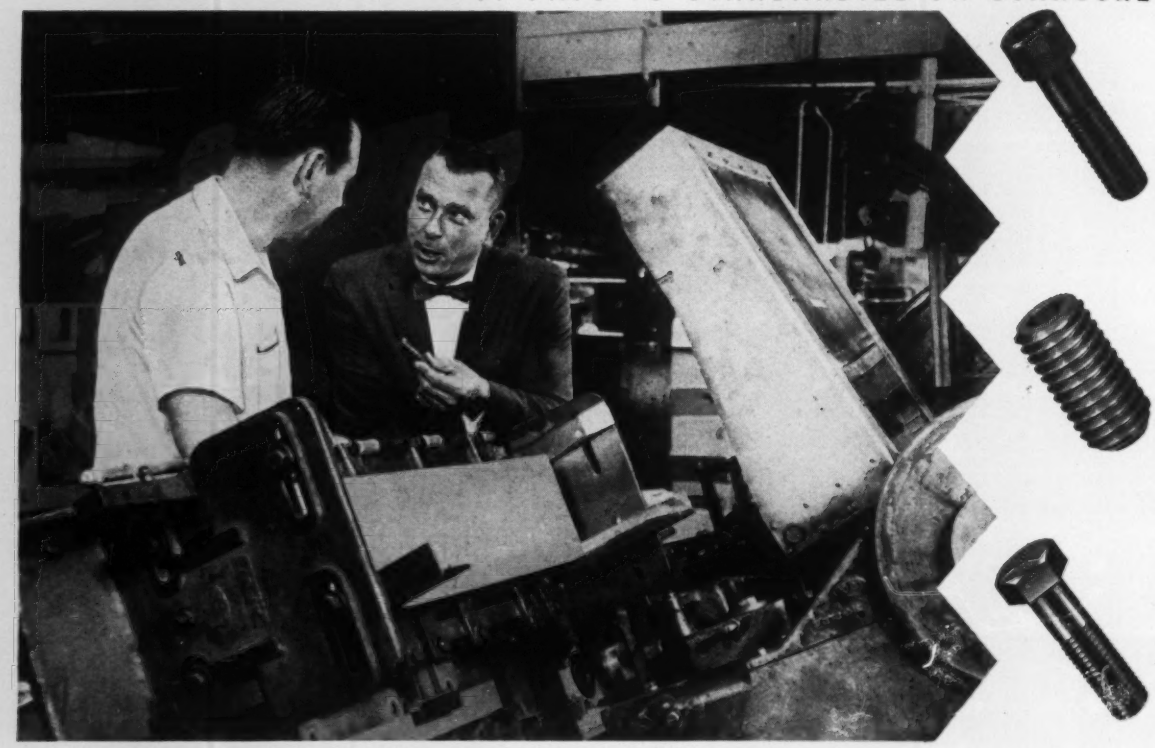
Decatur Quality Castings® are supplied in weights from a few ounces to 100 pounds. We suggest you consult us on your next casting requirements.

THE DECATUR CASTING CO.

Light Gray Iron and Alloyed Iron Castings
Decatur, Indiana Phone: Decatur 3-2700


IN YOUR OWN BACKYARD, Ironsides specialists formulate all-domestic roll-oils and other lubricants to meet your special mill requirements for increased speed and uniformity of production.
Ironsides
THE IRONSIDES COMPANY, COLUMBUS 16, OHIO • IRONSIDES OF CANADA, LTD., OAKVILLE, ONTARIO
Makers of Palmoshield and other shield lubricants

IT PAYS TO STANDARDIZE ON **STANSCREW**



Stanscrew solves production problem, saves money for *Ball* closures

The specialized machines which every day turn out millions of jar tops, bottle caps, and other closures for Ball Brothers Company, Inc. must work to a very tight production schedule. Fastener failures in this equipment can be extremely costly.

One particular application was a real headache. Even specially designed fasteners failed time and time again. Ball's distributor then called in the Stanscrew fastener specialist. His recommendations included minor redesign, the use of a particular standard fastener from Stanscrew's complete selection, and detailed instructions on its application. This eliminated many production interruptions for Ball . . . for important savings.

Whether you need fasteners for the maintenance of important production machinery or as components of your finished product, you can often save money by standardizing on Stanscrew . . . as more and more industrial leaders are learning. Stanscrew offers a complete stock of 5,500 different standard fasteners . . . produced to the highest quality standards made possible by American technology . . . to provide economical answers for the overwhelming majority of all industrial fastener requirements.

The suggestions and technical assistance of the Stanscrew fastener specialist may result in significant savings in your assembly and maintenance costs. Your local Stanscrew distributor will be happy to arrange a prompt visit. Call him today.

STANSCREW FASTENERS

CHICAGO | THE CHICAGO SCREW COMPANY, BELLWOOD, ILLINOIS
HMS | HARTFORD MACHINE SCREW COMPANY, HARTFORD, CONNECTICUT
WESTERN | THE WESTERN AUTOMATIC MACHINE SCREW COMPANY, ELYRIA, OHIO

STANDARD SCREW COMPANY 2701 Washington Boulevard, Bellwood, Illinois

STEELMAKING AT JESSOP

Experience counts . . . and Jessop has it

There is no substitute for experience in making steel for the reactors of nuclear submarines like the Nautilus, the Skate and the Polaris-firing George Washington. Jessop's activity in nucleonics dates back to the early days of the Manhattan Project.

Today, Jessop's still at it—continuing research, improving techniques, piling up experience in making sophisticated steels to harness the atom. And Jessop is out front in other steelmaking fields too.

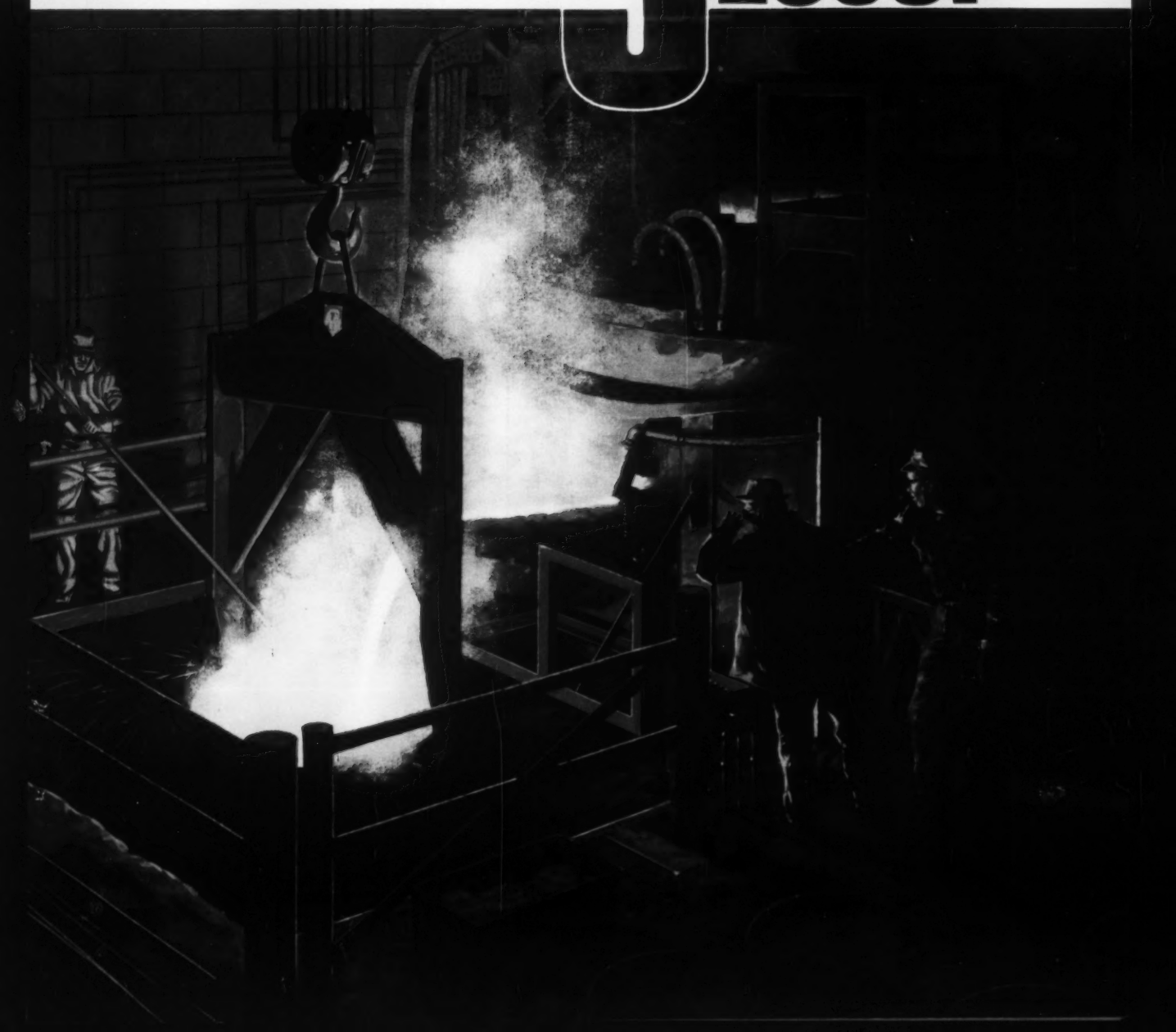
Whether you use heat- or corrosion-resistant stainless steels; abrasion- or shock-resistant steels; nonmagnetic or precision ground steels; high speed, cast-to-shape, clad or alloy steels, you can be sure of the quality—and *service*—you'll get when you do business with Jessop.

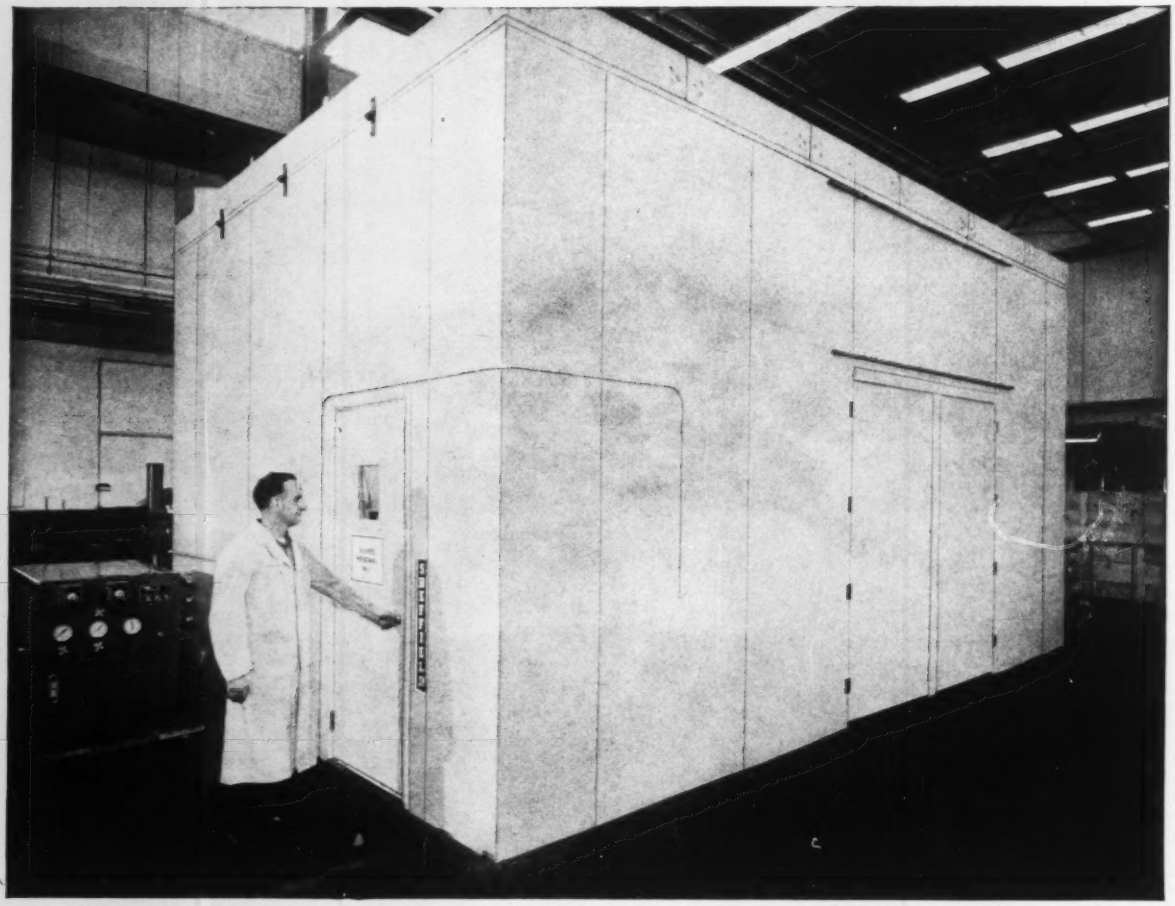
In quality steelmaking experience counts, and Jessop has it. Call a Jessop sales office in any of 23 major cities of North America and discuss *your* needs for specialty and alloy steels.

Jessop Steel Company
Washington, Pennsylvania

Plants and Service Centers:
Washington, Pa. • Los Angeles • Chicago • Detroit • Owensboro, Ky. • Wallaceburg, Ont.

JESSOP





Erect Sheffield PRE-FAB-LAB® in 2 to 3 days

The new Sheffield Pre-Fab-Lab® is an enclosure you can build readily from modular units, to provide a controlled environment for gage laboratory or "white room" precision assembly or machining areas for substantially less than the cost of a permanent installation.

The air conditioning system holds temperature constant within ±¼° F, ±½° F, or ±1° F depending on your needs. It keeps relative humidity under 50%, completely recirculates and electronically cleans the air every ten minutes.

The positive airlock door and 8′ x 8′ accessway may be positioned for your convenience. Standard sizes are 15′ x 23′, 15′ x 31′, and 15′ x 39′. Special sizes to order.

For specifications or a proposal, write the Sheffield Corporation, Div. 600, Dayton 1, Ohio.

The **SHEFFIELD** *Corporation* *Dayton 1, Ohio*

A subsidiary of The Bendix Corporation

Inspection Gages, Dimensional Control Instruments, Machine Controls, Automatic Gaging & Assembly Systems, Measuray® X-Ray Thickness Measuring, Crushtrue® & Multiform® Grinders, Cavitron® Ultrasonic Machine Tools, Press-Pacer® Transfer Units, Large Dies, Tooling, Contract Manufacturing.

Throughout the steel industry, the Blaw-Knox name means exceptional service and the highest standards of performance. Behind this name are the engineering force and plant capacity necessary to meet steelmakers' most advanced requirements for modern automatic equipment. Blaw-Knox Company, 300 Sixth Avenue, Pittsburgh 22, Pa.

BLAW-KNOX

a

b

c

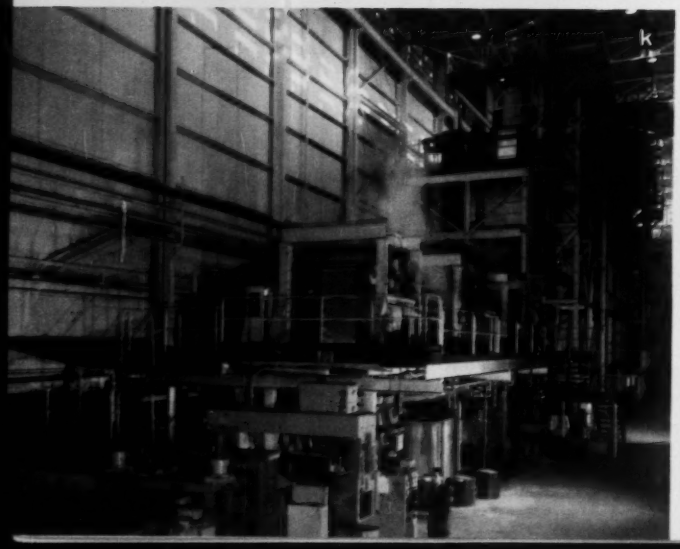
Rolling Mills and Processing Equipment for Shape Rolled Products

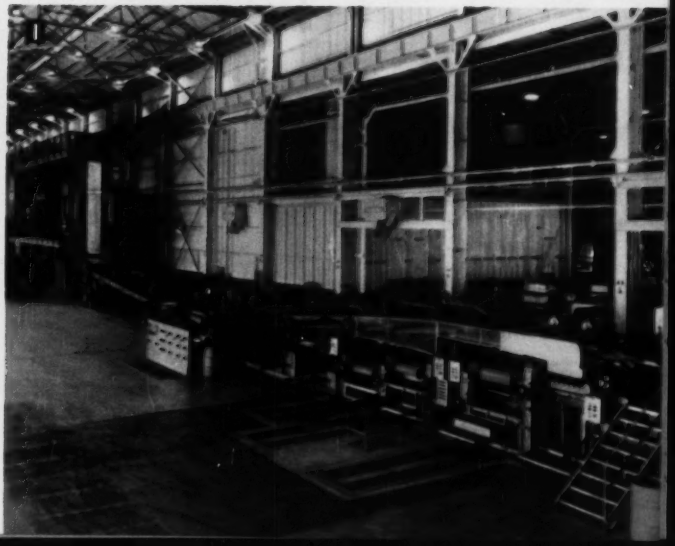
a Combination 46- x 114-inch Blooming-Slabbing Mill and 38- x 53- x 114-inch 4 high Plate Mill. b Wide Flange Beam and Structural Mill. c Merchant Mill.

Rolling Mills and Processing Equipment for Shape Rolled Products (Continued)

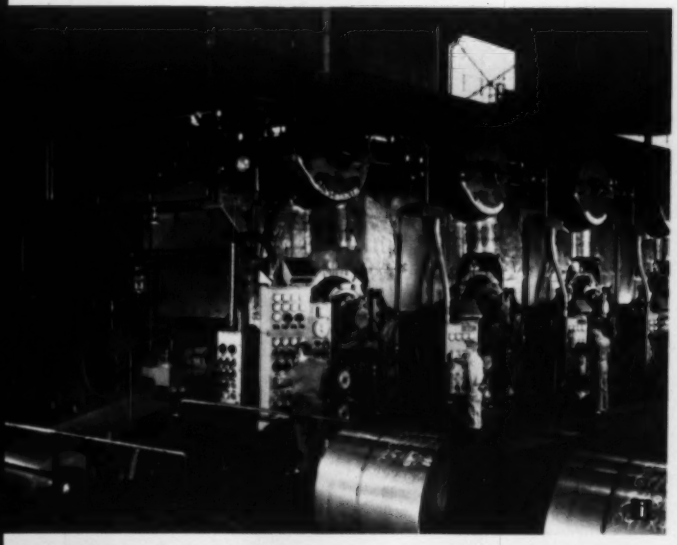
d Continuous Butt Weld Pipe Mill. **e** High Speed 2-roll Straightener in Cold Drawn Bar Line. **f** Roller Straightener for Hot Rolled Angles.

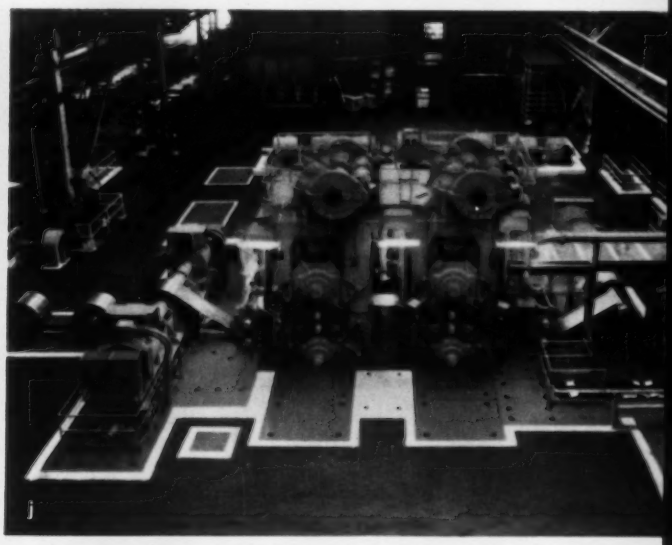
BLAW-KNOX





BLAW-KNOX





Rolling Mills and Processing Lines for Flat Rolled Products

g 46- x 90-inch Universal Slabbing Mill. **h** 56-inch Hot Strip Mill. **i** 60-inch Tandem Cold Strip Mill. **j** 19- and 53-inch x 48-inch Twin Temper Mill. **k** Continuous Annealing Line. **l** Electrolytic Tinning Line. **m** Continuous Galvanizing Line.

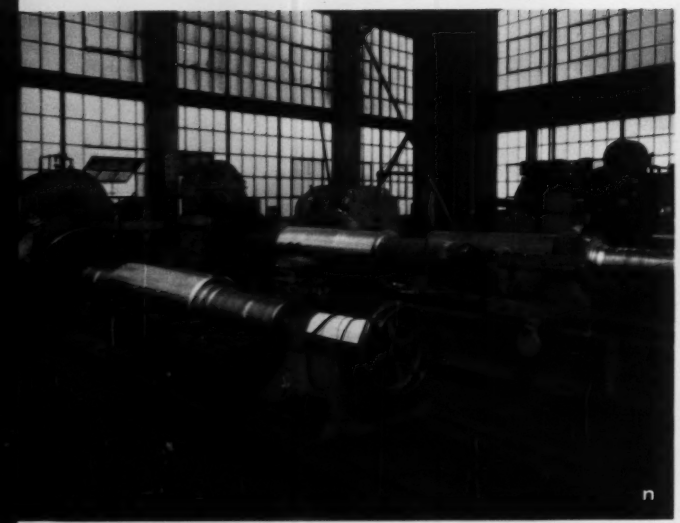
n **Iron, Alloy Iron, Steel and Alloy Steel Rolls.**

o **Foundry Products:** Peels, Slag Pots, Charging Boxes, Ingot and Charging Cars, Ladles, Trunnions and Rings, Blast Furnace Hoppers and Bells.

p **High Alloy Castings:** Radiant Tube Assemblies, Furnace Parts, Continuous Annealing, Conveyor, Feeder, Deflector and Zinc Rolls, and Heat Exchanger Elements.

q **Steel Plant Equipment:** Ladle Additions Feeders, Autopours,® Dolomite Machines, Water-cooled Doors, Frames, and Reversing Valves.

BLAW-KNOX



V-R

CREATING THE METALS THAT SHAPE THE FUTURE

Modern equipment assures precise shape and sizes

No single method can produce all the sizes and shapes of carbides manufactured at V-R. That is why five different pressing methods are used to meet industry's needs. The press shown here is typical of the modern, precision equipment used to compact carbide at V-R. Regardless of the method used, accurate controls and the knowledge gained through long experience enable V-R to form carbide to exact dimensional requirements and proper density for the very finest cutting tool materials.

WRITE FOR A COMPLETE CATALOG OF V-R QUALITY PRODUCTS OR CALL YOUR V-R MAN.

V-R VASCOLOY-RAMET

856 MARKET STREET • WAUKEGAN, ILLINOIS

C-810

Use this Steelmark on your consumer products

CF&I

BLACK SATIN

and other quality wires

Steel-strapped Coils
(100-2000 lbs. capacity)

Disposable Spools
(5-70 lbs. capacity)

Reel-Less Core
(800-1000 lbs.capacity)

Fibre Drum
(250-600 lbs. capacity)

Standard Coils, paper-wrapped,
steel-strapped or wire-tied

BLACK SATIN—a newly developed finish on Round and Square Oil Tempered Wire—is another result of CF&I's never-ending search for better and better wire products. Made by tempering wire under controlled atmospheric conditions, this powdery oxide finish serves as a lubricant during coiling and crimping operations. Black Satin reduces tool wear and cuts costly machine downtime. CF&I-Wickwire's Black Satin Oil Tempered Wire is available in continuous unwelded lengths up to 600 pounds in weight . . . in a full range of gages and sizes (.562 to .023 diameter) . . . and in coils from 16" to 72" in diameter. Straightened and cut lengths from 6" to 24' or longer can also be supplied. For your ease in handling and re-ordering, Black Satin is color-tagged to provide a complete record of its processing and intended use.

A COMPLETE RANGE OF QUALITY WIRES FOR VIRTUALLY EVERY REQUIREMENT. Whether you make fishhooks or can keys, CF&I produces the wire you need in more than 100 different categories. Let us show you how we can meet your most rigid chemical and physical specifications on high and low carbon wire in all sizes, shapes, tempers and grades.

CF&I-WICKWIRE WIRE IS PACKAGED FOR YOUR PRODUCTION. In instance after instance, manufacturers have reported cutting hours off daily downtime . . . easing storage and handling problems . . . increasing production up to 50%—after they switched to CF&I Wire packaged for their production. To help you get similar results, CF&I publishes a series of six wire bulletins. Each contains valuable information on one or more types of packaging. All six are designed to assist you in obtaining more efficient, more economical production through the use of wire packages suited to your requirements.

For additional information on CF&I Wire and your copies of our wire bulletins, contact the nearest CF&I sales office today.

CF&I WIRE

THE COLORADO FUEL AND IRON CORPORATION

DENVER · OAKLAND · NEW YORK

CF&I STEEL MADE IN U.S.A.

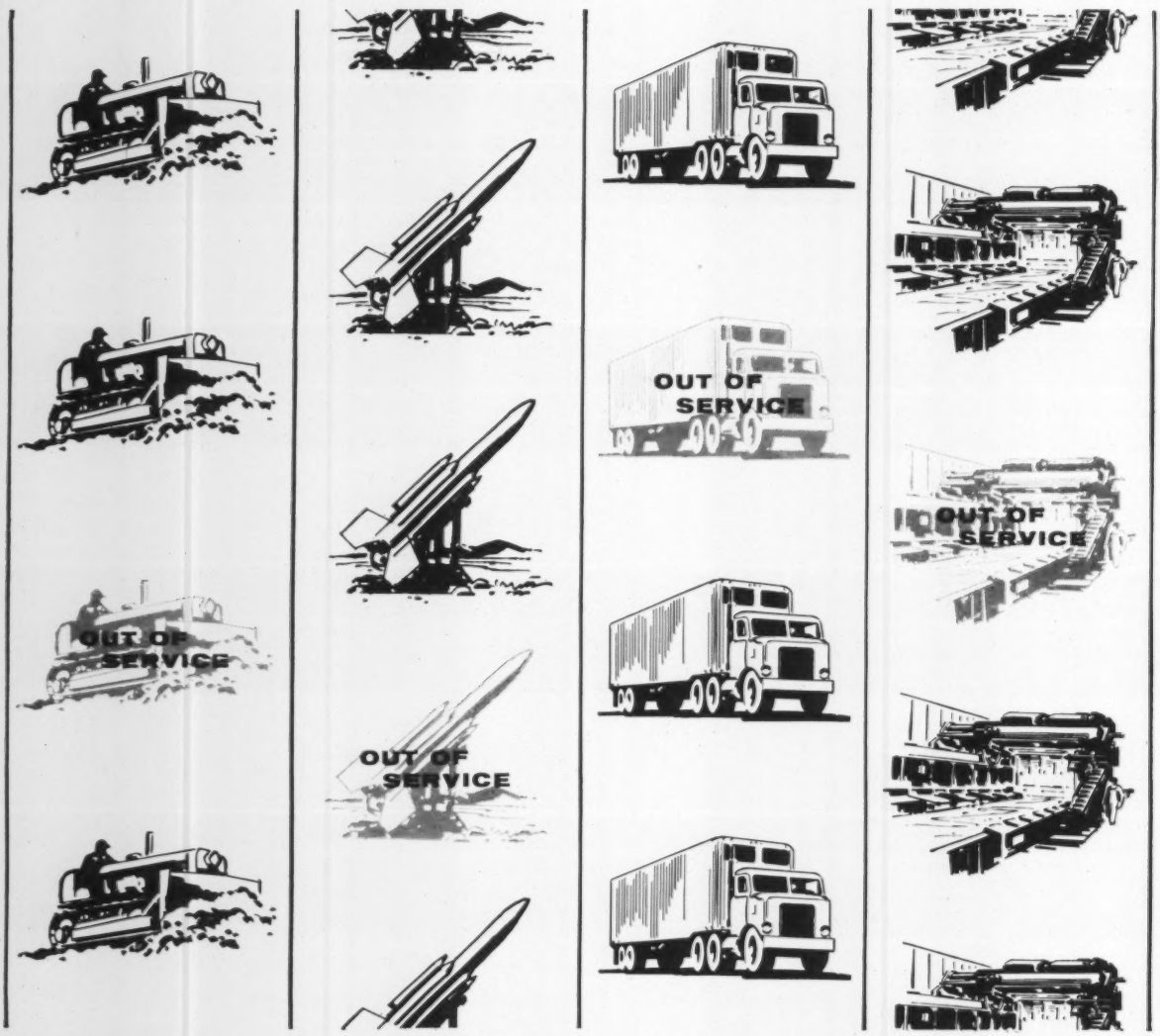
Steel-strapped Wooden Racks

Shaped Coils (1500-2500 lbs. capacity)

Stem-paks® (500-1000 lbs. capacity)

Returnable Spiders (2000-3000 lbs. capacity)

Reels (500-800 lbs. capacity)



Dependable ROLLWAY BEARINGS

help keep your down-time low

When a bearing "goes", your machine stops.

That's why it pays to call in Rollway. Especially when reliability is a must.

At Rollway, you can choose from a wide selection of sizes and types with maximum capacities . . . for normal, low or high temperature operation. All meeting or exceeding RBEC requisites in Classes 1 to 5.

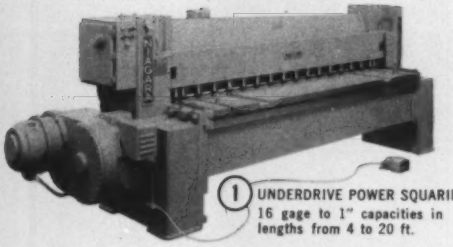
You'll find that Rollway meets your needs exactly – in commercial grade, precision, or ultra-precision bearings. To get the bearing you want in a hurry, or to start R and D on the bearing you've been dreaming about, just call or write Rollway Bearing Company, Inc., Syracuse 1, New York.

Where So Much Depends on So Little . . . You can depend on

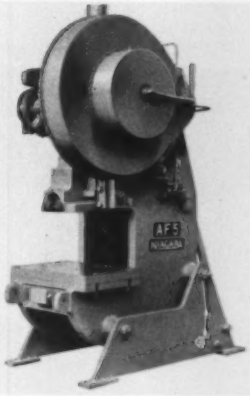
ROLLWAY BEARINGS

Radial and Thrust Cylindrical Roller Bearings

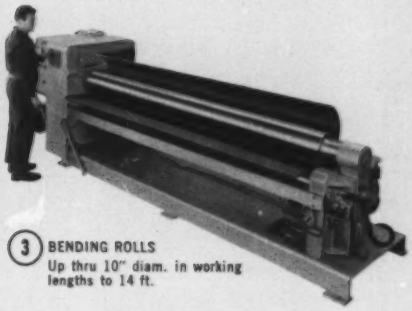
Talk about modern metal forming machines and shears...



1 UNDERDRIVE POWER SQUARING SHEARS
16 gage to 1" capacities in lengths from 4 to 20 ft.



2 SINGLE CRANK OBI PRESSES
5 great lines with 3 great clutches: air friction, air sleeve, and mechanical. 5½ thru 250 tons, 1¼" to 7½" diam. shafts



3 BENDING ROLLS
Up thru 10" diam. in working lengths to 14 ft.

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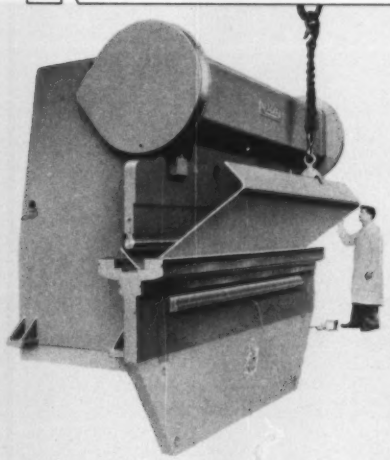
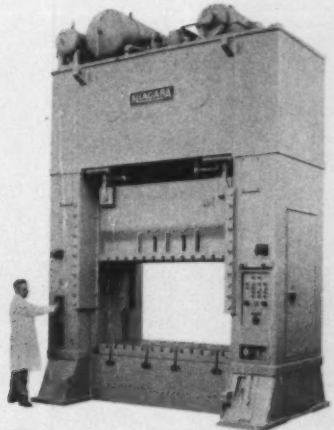
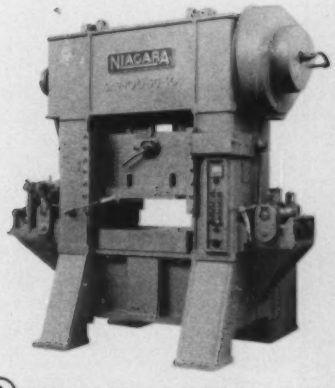


4 MECHANICAL PRESS BRAKES
15 thru 1500 ton capacities



5 STRAIGHT SIDE ECCENTRIC GEARED PRESSES
One, two, and four-point suspension. 100 thru 1250 ton capacities



6 AUTOMATIC FEED HIGH PRODUCTION PRESSES
25 thru 300 ton capacities

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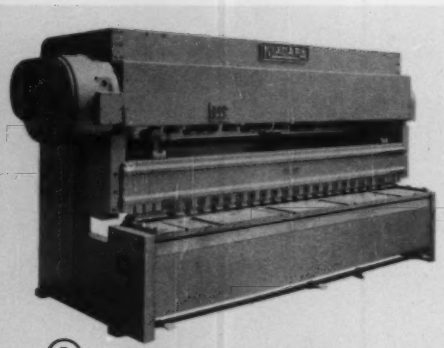
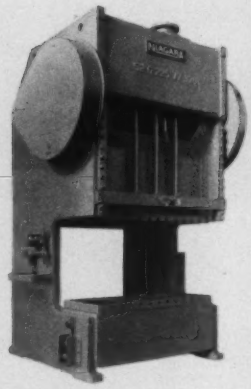
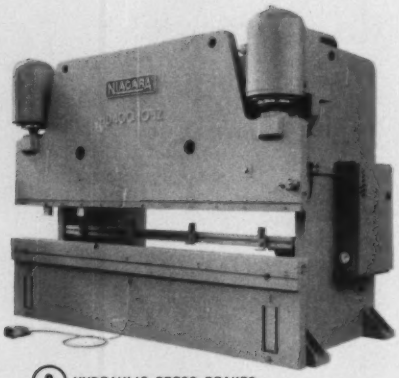


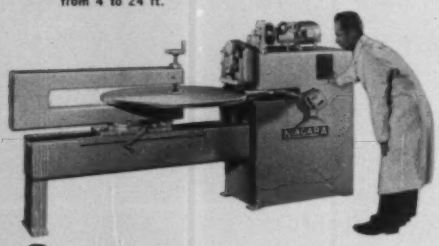
7 GAP FRAME POWER SQUARING SHEARS
12 gage to ½" capacities in lengths from 4 to 24 ft.



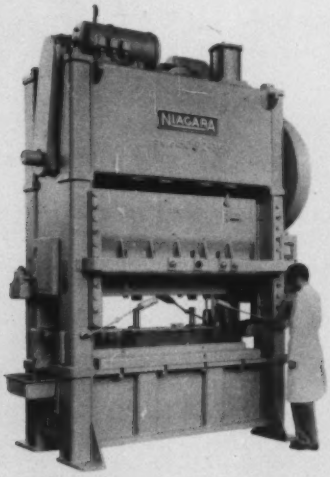
8 GAP FRAME DOUBLE CRANK PRESSES
Upright and inclinable,
45 thru 200 ton capacities



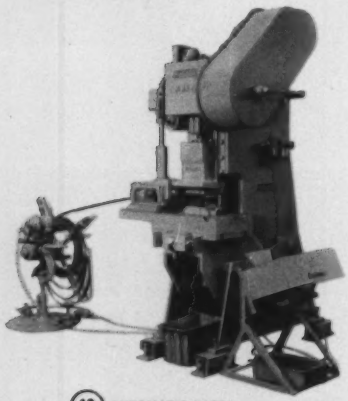
9 HYDRAULIC PRESS BRAKES
200 thru 1000 ton capacities



10 RING, CIRCLE SHEARS & FLANGERS
20 gage thru ⅜" for circles 3½" thru 72" diam.



12 STRAIGHT SIDE SINGLE AND DOUBLE CRANK PRESSES
50 thru 500 ton capacities



13 AUTOMATIC ULTRA HIGH SPEED OBI PRESSES
22 thru 60 ton capacities,
3¼" thru 6" diam. shafts

14 DEEP THROAT FRONT-TO-BACK CRANKSHAFT PRESSES

15 ADJUSTABLE BED PRESSES

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17 GROOVERS AND SEAMERS

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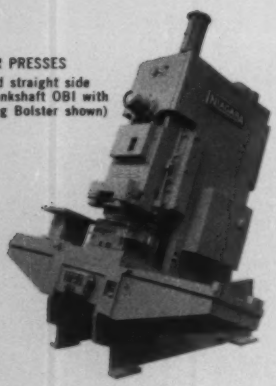

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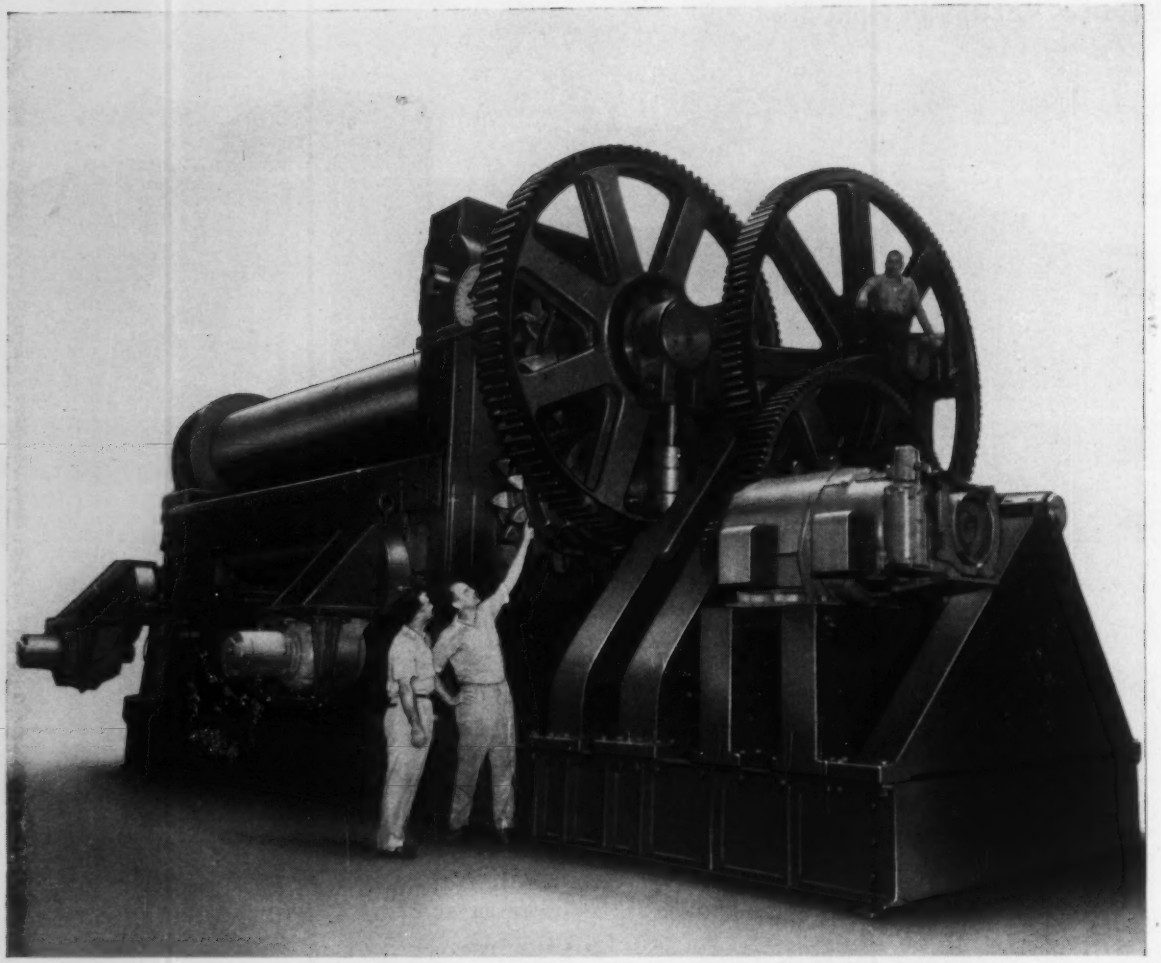

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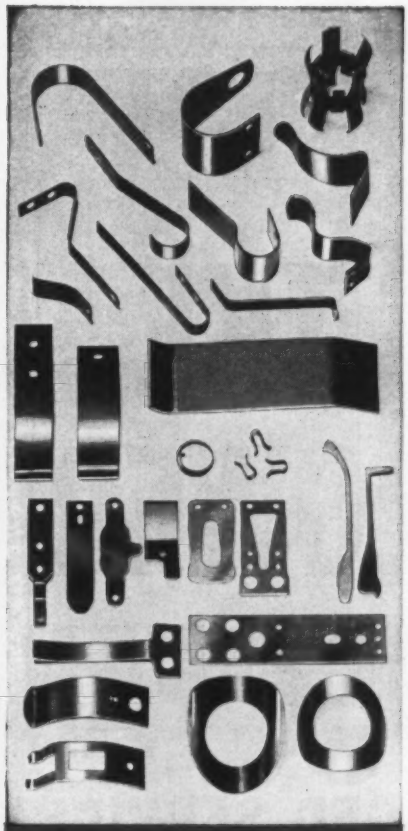

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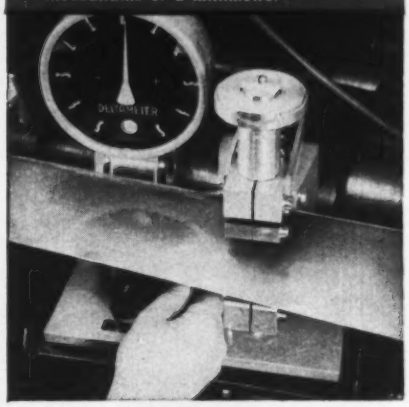

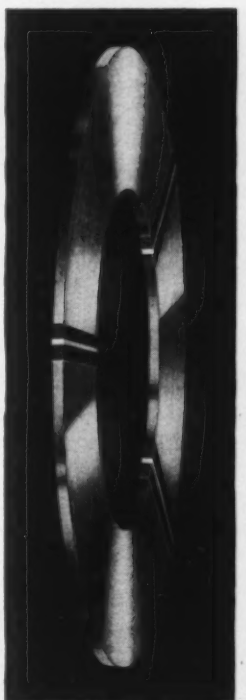

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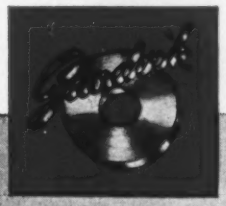

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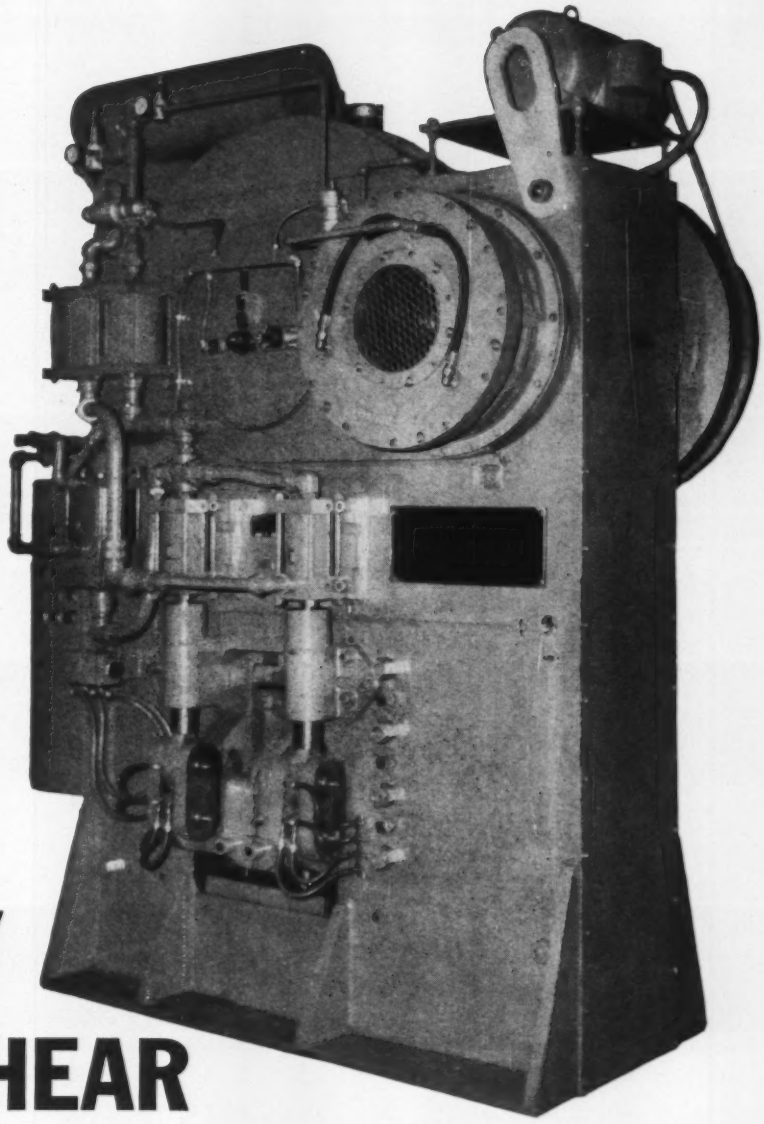

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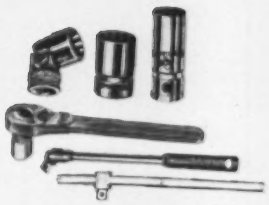

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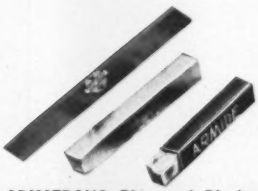

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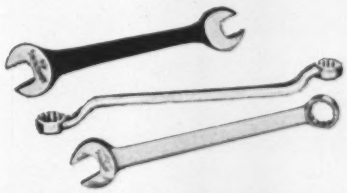

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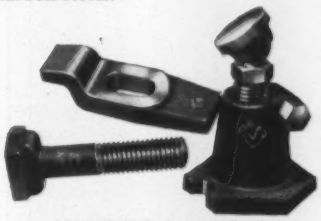

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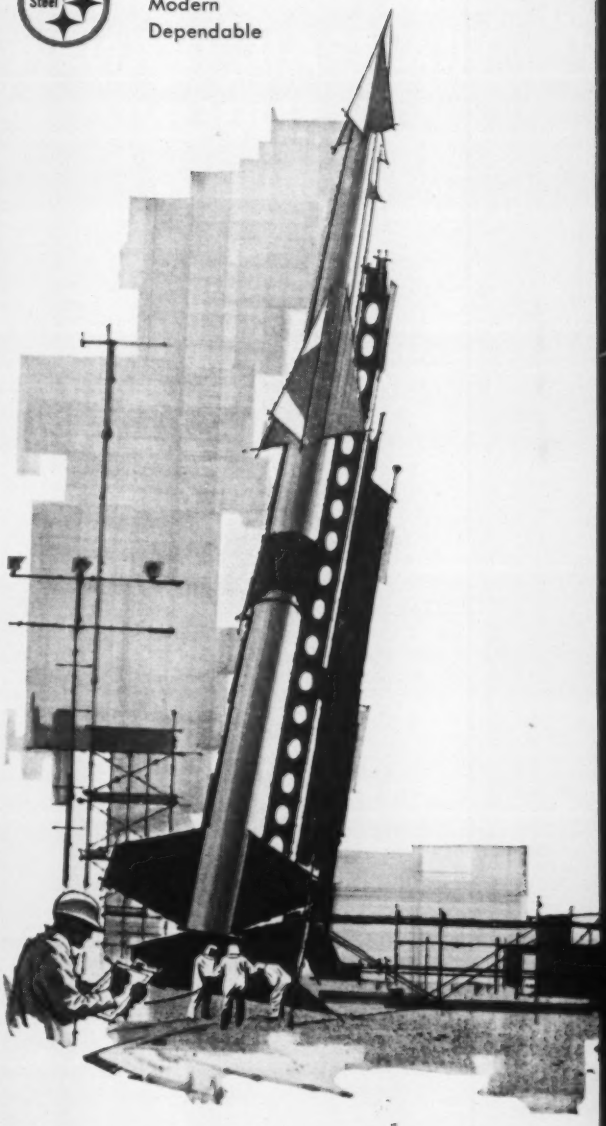

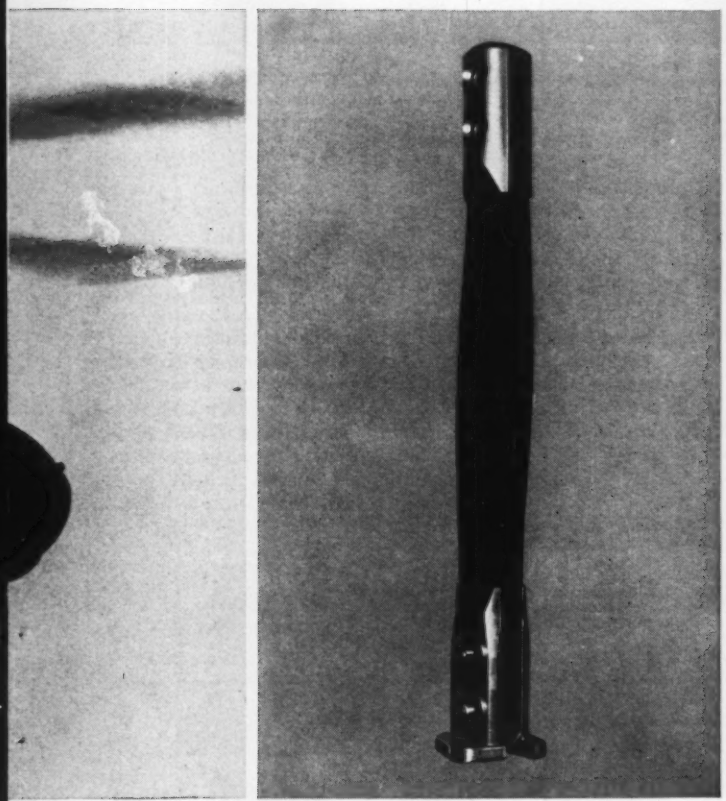

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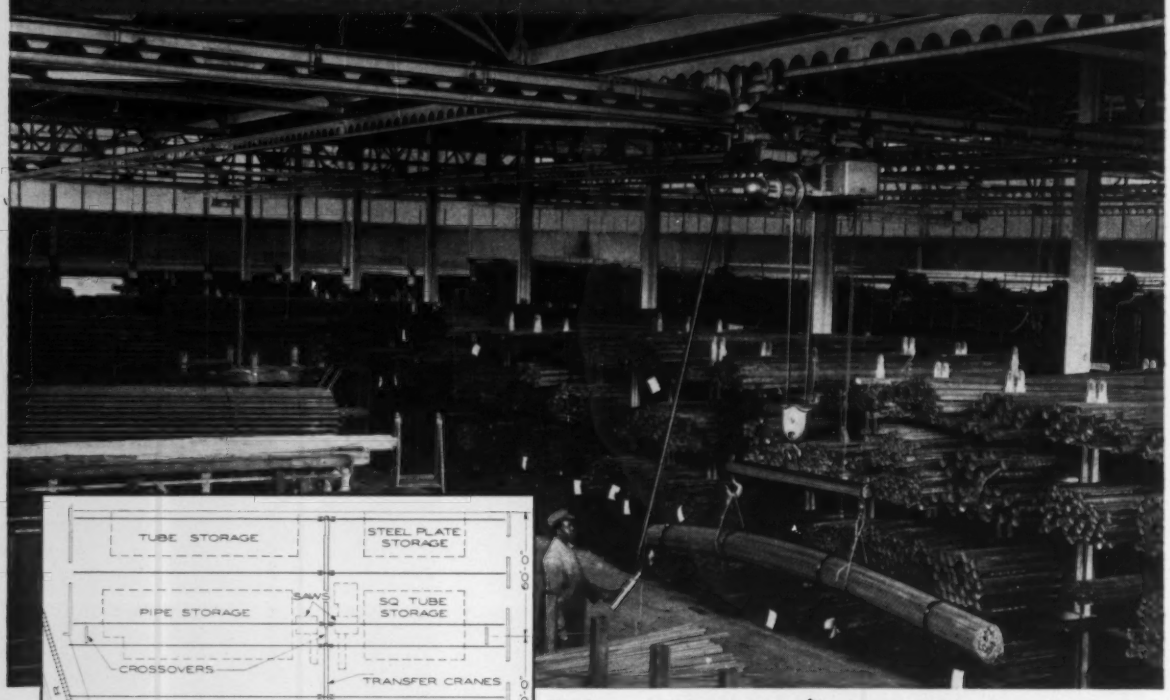

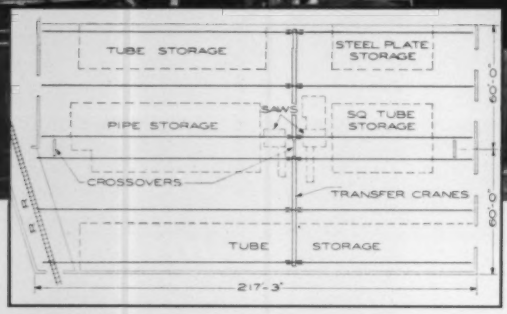

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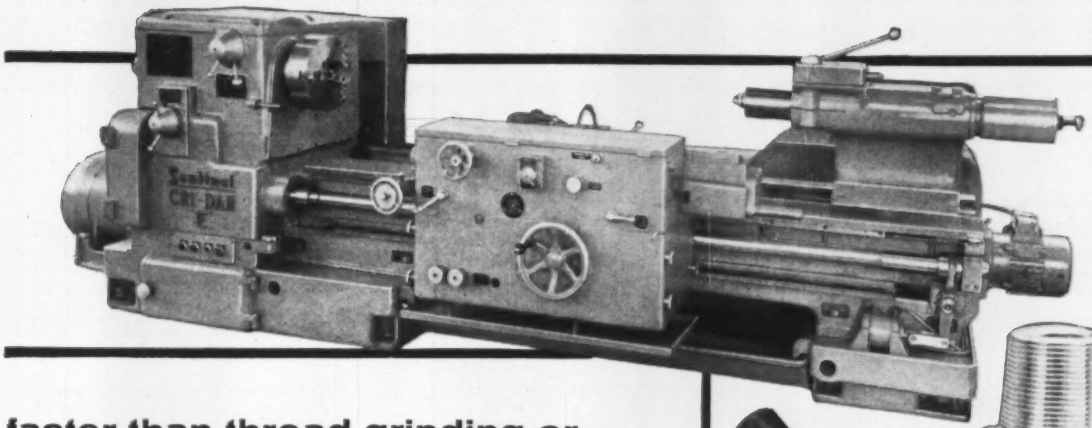

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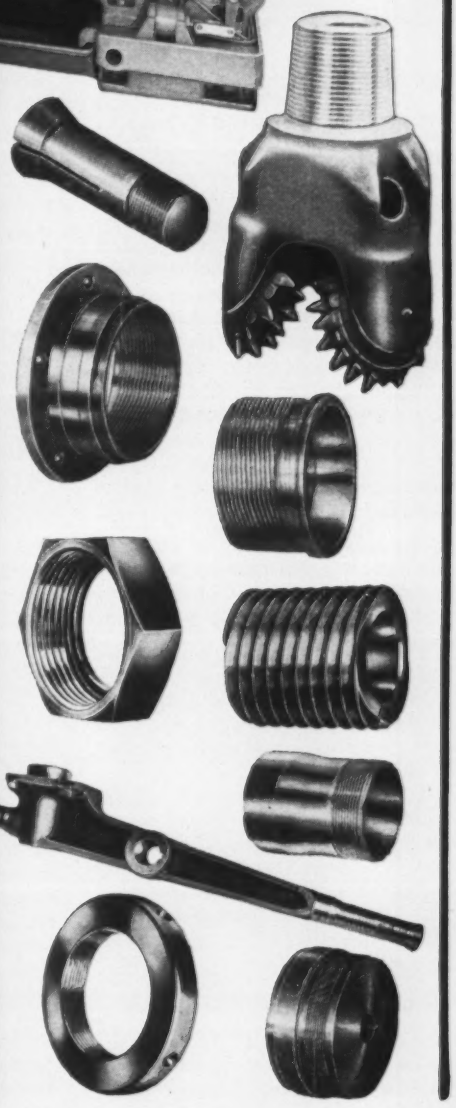

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Denison Engineering Division
American Brake Shoe Company

Utilizing the inherent smoothness, speed and accuracy of controlled hydraulic power, this new Denison "R-S-T" Series Multipress opens up important new opportunities for cutting production costs on virtually every type of pressing operation. Punching, riveting, assembling, staking, forming, marking and trimming are only a few of the numerous production jobs Multipress can perform faster, more accurately and at lower cost.

The advanced design features described below make this new Multipress a versatile cost-reduction tool on both small lots and high production runs.

Because it is so compact and requires so little space, Multipress is ideal for a continuous line operation where a series of presses is run side-by-side. For automatic operations, Multipress can be mounted around dial tables, feed mechanisms and indexing fixtures to keep tooling costs to a minimum. And controls can be actuated automatically from external sources, making it easy to interlock Multipress with other automated production operations.

CLEAN, COMPACT DESIGN

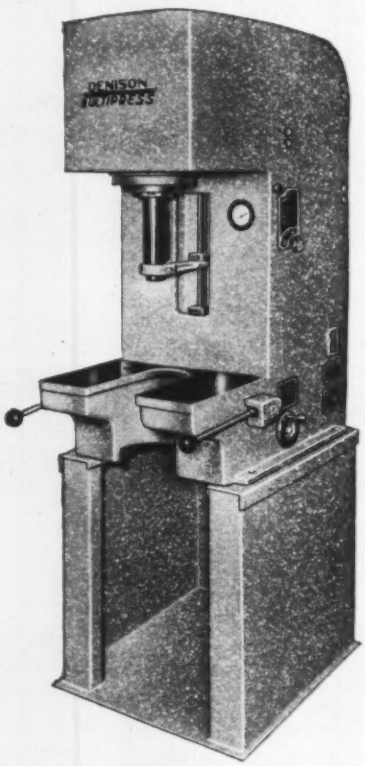
The cutaway illustration on the opposite page shows the basic components of the new Multipress. These include the frame, oil reservoir, hydraulic pump and its electric motor, and the ram-and-cylinder assembly. Note the rugged, extremely simple and compact design.

Briefly, here's how the Multipress operates: The electric motor drives a balanced-vane, cartridge-type hydraulic pump, which draws oil from the reservoir and delivers it under pressure to the ram-action control valve. The valve is actuated when the operator depresses the dual control levers. Oil under pressure flows into the top of the cylinder, forcing the piston and ram down on the work. Ram action is non-rotating, shockless and quiet. When the control levers are raised, oil flows through the lower cylinder port, forcing the piston and ram upward. High-fidelity control of ram speeds, pressures, strokes and ram action is accomplished manually, automatically or electrically by using any one of 18 different operating and basic control valves. The Multipress unit is complete with self-contained piping, control and power circuitry.

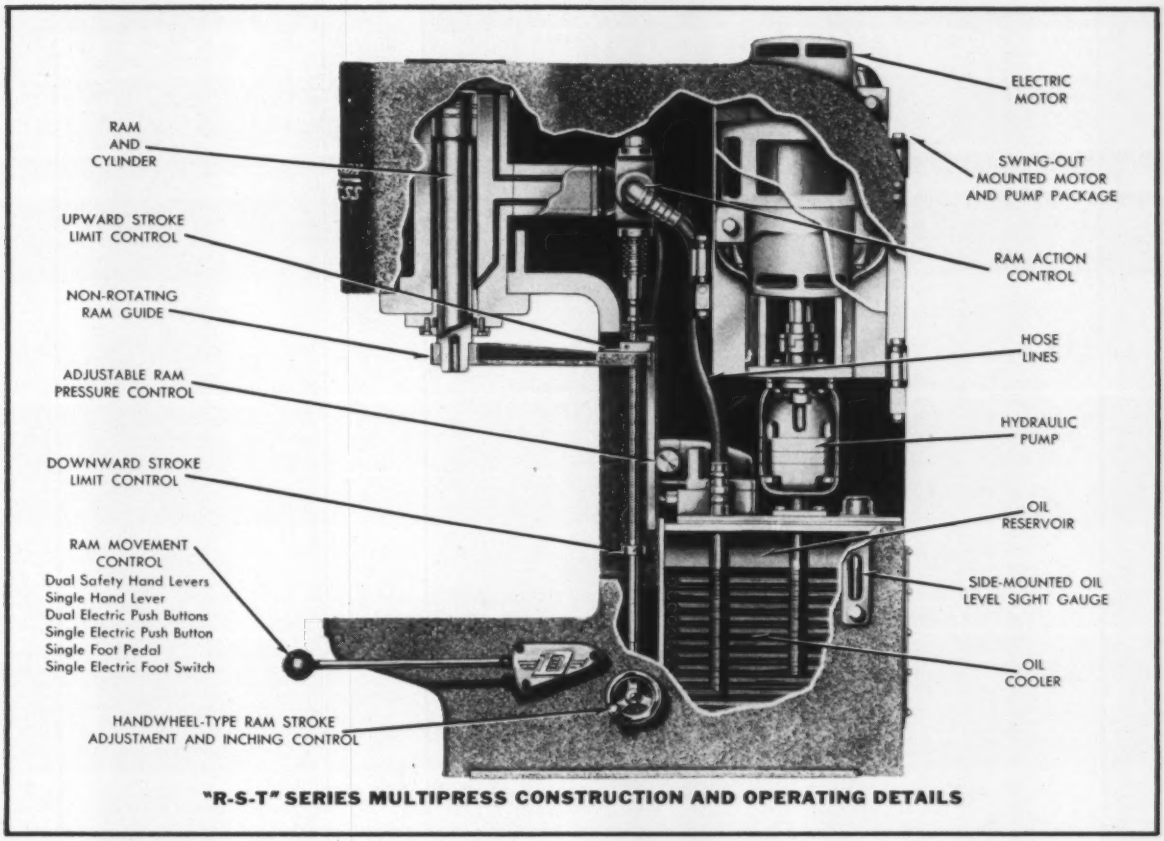
ADVANCED FEATURES

An important consideration in the selection of a Multipress is its *rapid ram approach* feature. The true productive time of a press is only during the actual pressing stroke. Multipress *reduces non-productive time 85%* by increasing the speed of ram approach and ram return. This time-saving allows more cycles-per-minute, more pieces-per-hour—and can result in significantly lower unit production costs.

Another cost-reduction benefit is afforded by faster, simpler tooling and set-up. Greater daylight, larger bed area and throat dimensions provide easy access to tooling. The task



COMPLETELY NEW IN DESIGN. *"R-S-T" Series Multipresses are available in three size and capacity ranges: "R"—1 to 6-tons, "S"—3 to 8-tons, "T"—4 to 12-tons. Unit above is shown mounted on optional bench accessory.*



"R-S-T" SERIES MULTIPRESS CONSTRUCTION AND OPERATING DETAILS

of mounting and setting the press tooling is simplified considerably. The handwheel-type ram stroke adjustment and inching control quickly set the upper limit of the ram stroke, and allow the operator to "inch" the ram to the work under controlled pressure with high accuracy.

SAVES OPERATOR TIME AND WORK

A control knob, conveniently located on the side panel of the press, permits quick adjustment of ram pressure. This arrangement is a great saver of spoiled work and lost time during set-up operations. The operator simply checks the pressure gauge to determine working pressure necessary to accomplish the job. By adjusting the control to that pressure, the ram will travel no further after the work is accomplished. This prevents harmful pressures from being exerted on individual pieces of work even though they may vary in size.

A pushbutton valve for the pressure gauge provides instantaneous check of ram pressure, and keeps the gauge out of the circuit during pressing operations for maximum gauge protection and long life.

BUILT TO J.I.C. STANDARDS

The "R-S-T" Series Multipress is designed to J.I.C. specifications. The swing-out, J.I.C.-mounted motor and pump package make it easy to inspect and service the press. Because the motor and pump are mounted on a single, vertical bracket hinged to the press frame, *quick accessibility to all controls* is possible by simply swinging the complete motor and pump unit out of the frame housing.

The Multipress frame itself is rigid, multi-piece welded steel construction. It is designed and fabricated for .001" deflection per ton.

Both the base and the press bed are recessed to provide more knee room for the operator. All operating and adjustment controls are located "up front" for greater operator efficiency.

In the Denison Multipress design, precision control of ram speeds, ram pressures, ram strokes, ram actions—means tremendous press *versatility* and insures complete uniformity of finished work regardless of variations in work sizes, materials, work positioning or other variables.

A complete line of tailored accessories is available for use with "R-S-T" Series Multipress, including benches, bolsters, index tables, feed mechanisms, touch control and knockout rams.

WRITE FOR FREE CATALOG

Operating data and specifications on the new "R-S-T" Series Multipress, plus information on the complete line of other one to 100-ton capacity Multipress units, are available from your nearby Denison hydraulic press specialist. Call him, or write to us for Bulletin 324 and the new 26-page Catalog 120.

DENISON ENGINEERING DIVISION
American Brake Shoe Company
1242 Dublin Road • Columbus 16, Ohio

8 NEW VOSS LEVELERS AT U. S. STEEL!

HERE'S THE RUN-DOWN:

VOSS VERSATILITY DEMONSTRATED IN LEVELER APPLICATIONS AT U. S. STEEL

The United States Steel Corporation has been using Voss Levelers for many years. During the past 2 years, U. S. Steel has again shown its confidence in Voss by ordering *eight new levelers* for installation in various plants. The applications are varied, ranging from galvanized and cold-rolled to plate and high-yield missile stock. Exclusive patented Voss principles enable *all* users to get better than stretcher-level flatness under most conditions, and at high production speeds . . . results unobtainable with any other leveler.

Voss Inverted Roller Levelers are designed for ferrous and non-ferrous metals in a wide variety of applications. Let Voss put 30 years of leveling experience to work for you.

INSTALLED:

GARY SHEET AND TIN MILL
Application: Tin Plate Installed: 1958

IRVIN WORKS
Application: Cold-rolled Shear Line Installed: 1959
Application: High-Speed Galvanizing Line Installed: 1960

VANDERGRIFT WORKS
Application: High-yield Missile & Stainless Steels
Min: .062 Max: .1875 Installed: 1960

ON ORDER:

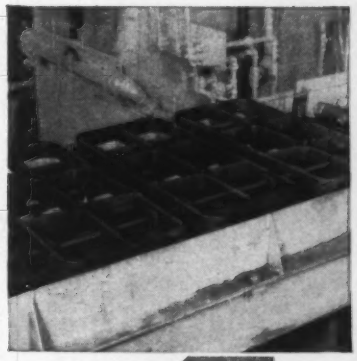
GARY SHEET AND TIN MILL
Application: Hot and Cold-rolled Steel Plate
Min: .062 Max: .250, 75" width Installation: Late 1960

IRVIN WORKS
Application: Cold-rolled Shear Line Installation: Late 1960

COLUMBIA-GENEVA DIVISION
Application: Cold-rolled Shear Line Installation: Early 1961
Application: High-Speed Galvanizing Line Installation: 1961

Voss ENGINEERING CO.

7301 Penn Ave. Pittsburgh 8, Pa. Churchill 2-4422



1 HOM, a new alloy developed by Duraloy metallurgists and capable of retaining high working strength at temperatures up to 2200°F, with limited application at 2300°F. The alloy is applicable for all types of castings: static, centrifugal, shell-molded.

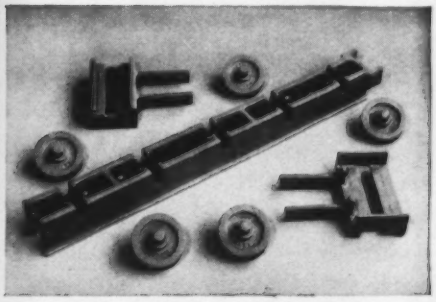
2 Shell-molded castings for meeting close and rigid tolerance limits; post-casting machining or other finishing practically eliminated; low mass production costs.

Illustrating 4 of Duraloy's Major Casting Services

If the casting used in your equipment has to meet high temperature (anything up to 2300°F) and/or corrosion, why not discuss your requirements with our metallurgical staff? Our company can call upon more than 35 years of experience in this exacting business of high alloy castings. In the meanwhile, if you would like to have a copy of our latest catalog, write or call our nearest office.

3 Centrifugal castings which produce a denser, more uniform metal approaching forged metal strength.

4 Static castings which can be produced in weights ranging from a few ounces to single castings 7 tons and heavier; wide range of alloying combinations, including the new HOM referred to above.



Note

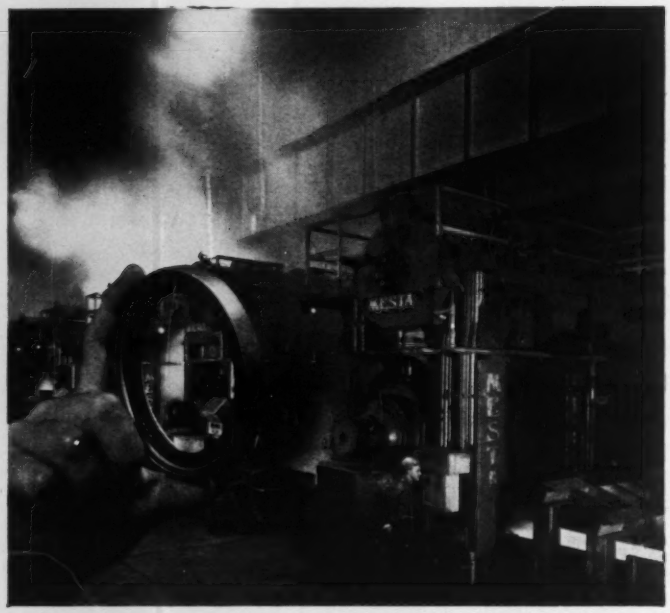
As a point of interest, all of the castings shown here were produced for Lindberg Engineering Company, Chicago, for incorporation in heat-treating and annealing equipment sold by that company. The centrifugally cast tube for the generator, trays, and rollers for the furnace rails are cast of HOM. The rails and rail supports for the furnace are statically cast of 35-15 alloy.

ALLOY CASTING INSTITUTE ACI MEMBER

The DURALOY Company

OFFICE AND PLANT: Scottdale, Pa.
EASTERN OFFICE: 12 East 41st Street, New York 17, N. Y.
CHICAGO OFFICE: 332 South Michigan Avenue
DETROIT OFFICE: 23906 Woodward Avenue, Pleasant Ridge, Mich.

ENGINEERED OIL SEALS
for Steel Mills



Garlock KLOZURE Oil Seals protect vital bearings from damage, add to efficiency of new Jones & Laughlin punch card-operated continuous mill at Aliquippa, Pa.

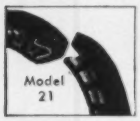
Jones & Laughlin Steel Corporation specifies Garlock KLOZURE* Oil Seals to protect important bearings on new punch card-operated mill at Aliquippa.

At dozens of vital locations on the 44" 4-Hi Continuous Mill—approach and runout tables, vertical edgers, coilers, rotary crop shears—the Garlock KLOZURE Oil Seals perform a double duty. They stop leakage of lubrication from the bearings, prevent harmful scale, spray, dirt from getting to the bearings.

In wide use today throughout the steel industry, Garlock KLOZURE Oil Seals are available in a wide range of designs. For example, Model 142, a face-type KLOZURE, is designed to seal

surfaces perpendicular to shaft . . . keeps water splash and scale out of bearings at the shoulder of mill rolls. Models 64 and 82 are applied to large shafts at normal or high speeds . . . ideal for

protecting bearings on back-up and work rolls. Model 53 withstands temperatures up to 250°F at normal or high speeds . . . recommended for table rolls. Where equipment can't be dismantled easily, Models 21 or 23 Split-KLOZURES are the choice.



Like Jones & Laughlin, many of the large steel producers are enjoying the advantages of Garlock KLOZURE Oil Seals. For instance, all KLOZURES are oil and grease resistant . . . impervious to water, mild acids, alkalies . . . non-abrasive . . . withstand temperatures from −40°F to +250°F. For extreme conditions, Garlock furnishes sealing elements resistant to practically any fluid, and serviceable as high as +500°F.

Enjoy these same benefits. Talk to your local Garlock representative about high-quality KLOZURE Oil and Grease Seals. Call him at the nearest of

GARLOCK

Garlock's 26 sales offices and warehouses throughout the U.S. and Canada. Or, write for KLOZURE Catalog 30. Garlock Inc., Palmyra, N. Y.

Canadian Div.: Garlock of Canada Ltd.

Plastics Div.: United States Gasket Company

Order from the Garlock 2,000 . . . two thousand different styles of Packings, Gaskets, Seals, Molded and Extruded Rubber, Plastic Products.

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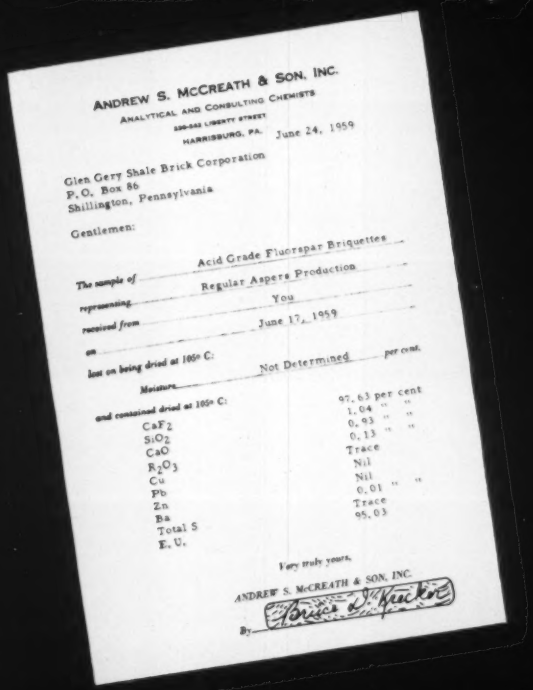
NEW ...research breakthrough FLUORSPAR BRIQUETTE

GLEN-SPAR

PATENTS PENDING

Easier Handling - Better Control!



ANDREW S. McCREATH & SON, INC.
ANALYTICAL AND CONSULTING CHEMISTS
320-322 LIBERTY STREET
HARRISBURG, PA. June 24, 1959

Glen Gery Shale Brick Corporation
P.O. Box 86
Shillington, Pennsylvania

Gentlemen:

The sample of Acid Grade Fluorspar Briquettes
representing Regular Aspers Production
received from You
on June 17, 1959
last on being dried at 105° C:
Moisture Not Determined per cent.
and contained dried at 105° C:

CaF_2	97.63 per cent
SiO_2	1.04 " "
CaO	0.93 " "
R_2O_3	0.13 " "
Cu	Trace
Pb	Nil
Zn	Nil
Ba	0.01 " "
Total S	Trace
E. U.	95.03

Very truly yours,
ANDREW S. McCREATH & SON, INC.
By Brian S. Tucker

Guaranteed to equal or exceed this chemistry

✓ FOR MAXIMUM *Quality Control*

By a new exclusive process—The Glen-Spar briquette becomes the first and finest fluorspar offering consistent uniformity in size and certified high purity . . . guaranteed minimum of 95 effective units—absolutely dry.

Production experience has conclusively demonstrated the exceptional advantages in using this new, more effective flux—Glen-Spar—the preferred high purity fluorspar now available for every type of basic furnace practice.

✓ FOR LOWER *Production Costs*

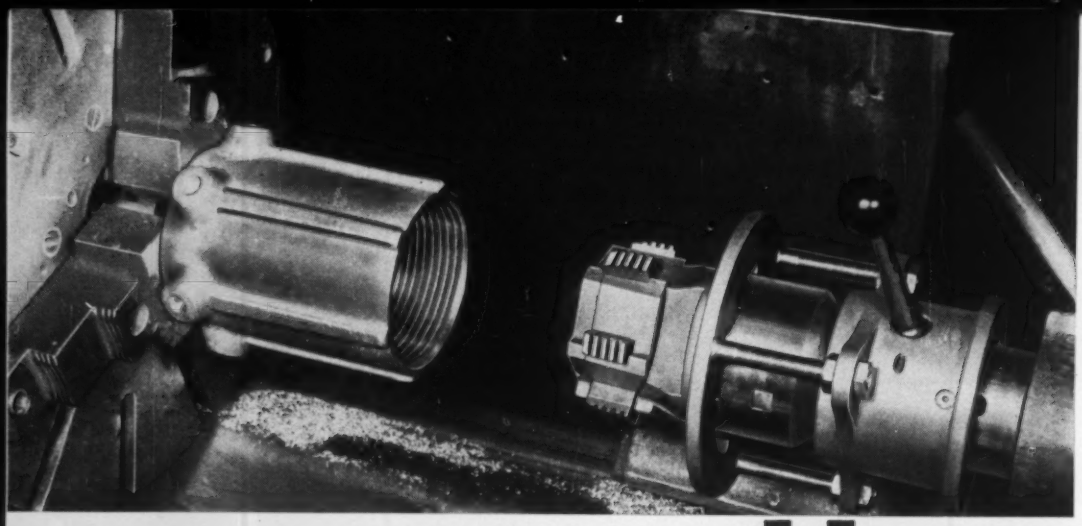
Besides providing better control and closer chemical tolerances in melting operations (plus, less fluorspar required per ton of steel), Glen-Spar briquettes provide the ultimate for ease of handling and inventory control.

Through packaging in 450 brick cubes (approx. 1 ton), steel strapped onto wooden pallets to permit the use of mechanical lift equipment . . . impressive savings have resulted.

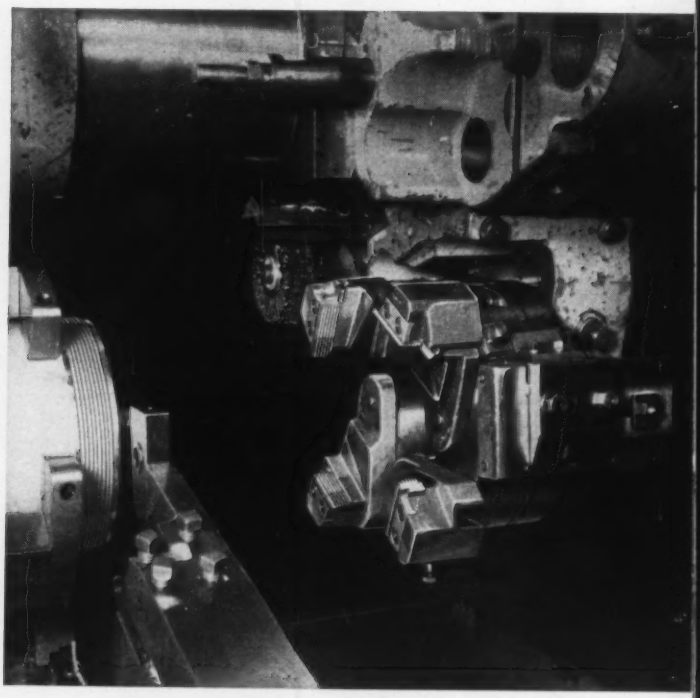
Would you like to receive a Glen-Spar briquette . . . free? Write to us.

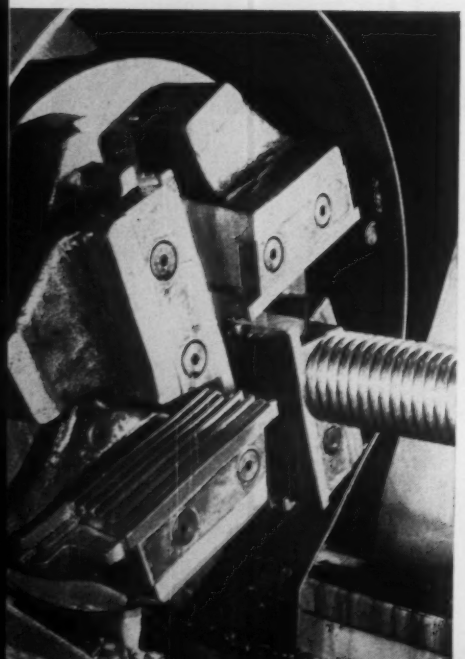
GLEN-GERY SHALE BRICK CORPORATION

MINERAL PRODUCTS DIVISION P. O. BOX 206 SHILLINGTON, READING, PENNA.



the world's largest selection of **thread**





THREADING EFFICIENCY ...

requires the selection of the proper Thread Cutting Tool for the job to be done, and is the essence of LANDIS design. To ensure that you may use the most efficient threading tool, LANDIS manufactures the world's largest selection of Thread Cutting Tools ... both internal and external.

cutting tools

DIE HEADS ... in a range of ⅛"—9¼" for threading machines, turret lathes, screw machines, reversing spindle machines, bar automatics. *Heat-Treated* types for economy, wide range coverage, quick set-up changes and oversize capacity. *Hardened and Ground* types for work on which extreme accuracy and maximum production are of prime importance. *Solid Adjustable* types for high production threading on reversing spindle machines.

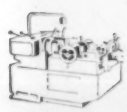
TAPS ... in a range of 1¼"—24". *Collapsible Taps* for producing parallel threads, *Receding Chaser Collapsible Taps* for tapered threads. Both have wide diametrical range through use of detachable heads. *Non-Collapsing Solid Adjustable* types for high production tapping on reversible spindle machines. Special Taps are available.

CHASERS ... all Landis Die Heads use Landis Tangential Chasers featuring: interchangeability, natural cutting clearance, permanent throat, useable for most of their length, right- and left-hand threads with the same chasers, and changeable rake and lead angles. Landis Tap Chasers, manufactured with the same consistency of quality and experience as the Tangential Chaser, are "tailor-made" to suit the application to produce a high degree of thread finish and the maximum number of pieces between grinds.

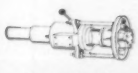
The constant research for better threading methods which has brought to LANDIS leadership in its field today plays an even more important part in our activities. We offer all manufacturers our over 50 years experience in all phases of Threading. If you need help involving threads, whether design or production, or if you feel that your present threading methods should be improved, send us your specifications, or our representative will call at your convenience on request.

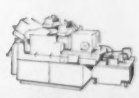
LANDIS *Machine* COMPANY WAYNESBORO PENNSYLVANIA

THE WORLD'S LARGEST MANUFACTURER OF THREADING EQUIPMENT

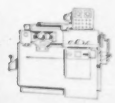

Threading Machines

Die Heads — Rotary & Stationary


Taps — Collapsible & Solid Adjustable


Centerless Thread Grinding Machines

Thread Rolling Tools


Thread Rolling Machines

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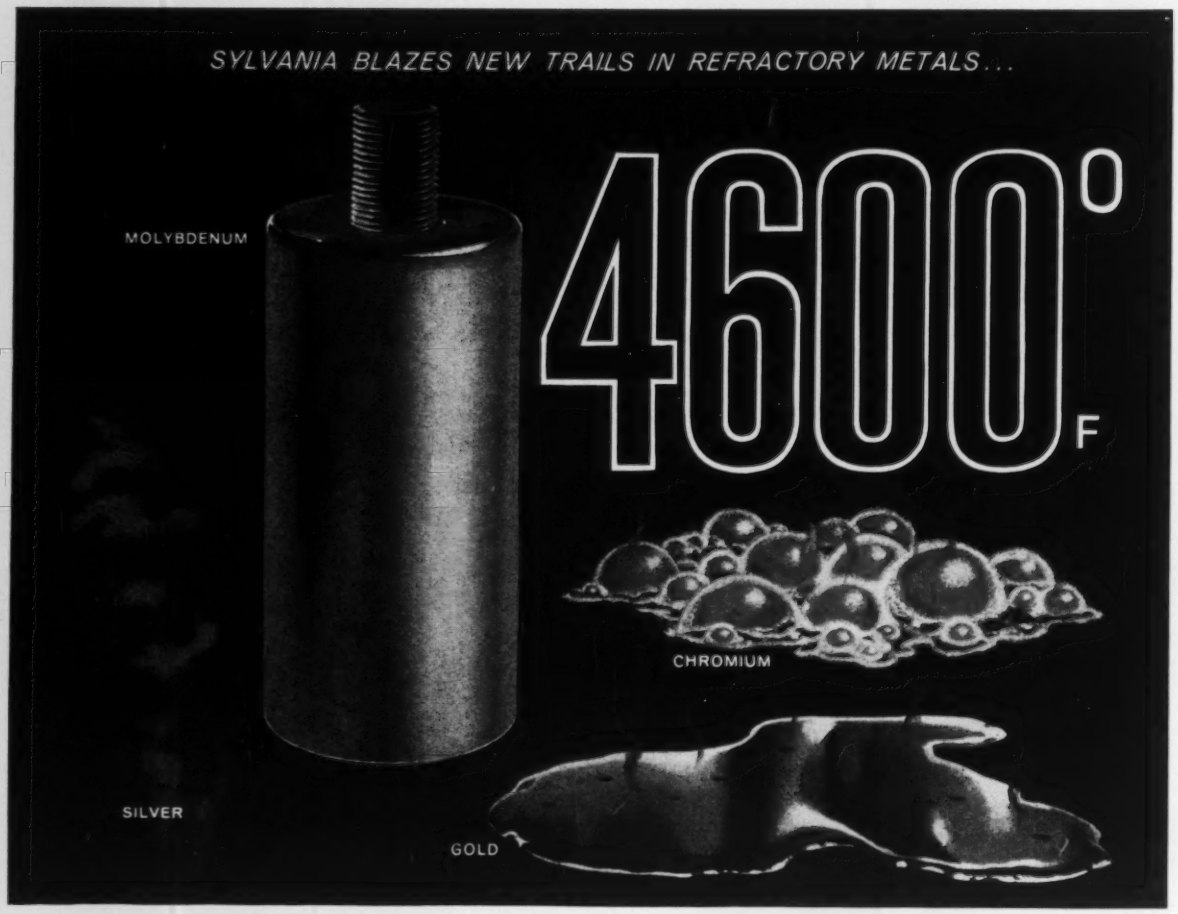


SYLVANIA FIRES POINT-BLANK

... at transforming research for the military into tools for industry

At 4600°F. gold turns to liquid. Chromium boils. Silver vaporizes. But molybdenum stays solid.

At Sylvania, such high temperatures help our scientists turn defense research on tungsten and molybdenum into practical answers for industry.

For instance, not long ago we devised a new method in which refractory metals are produced as powder of controlled particle size. This powder is isostatically pressed at high pressure and then sintered at high temperatures. Result? Ingots, bars—even intricate shapes—can be produced more efficiently, with more uniform compaction.

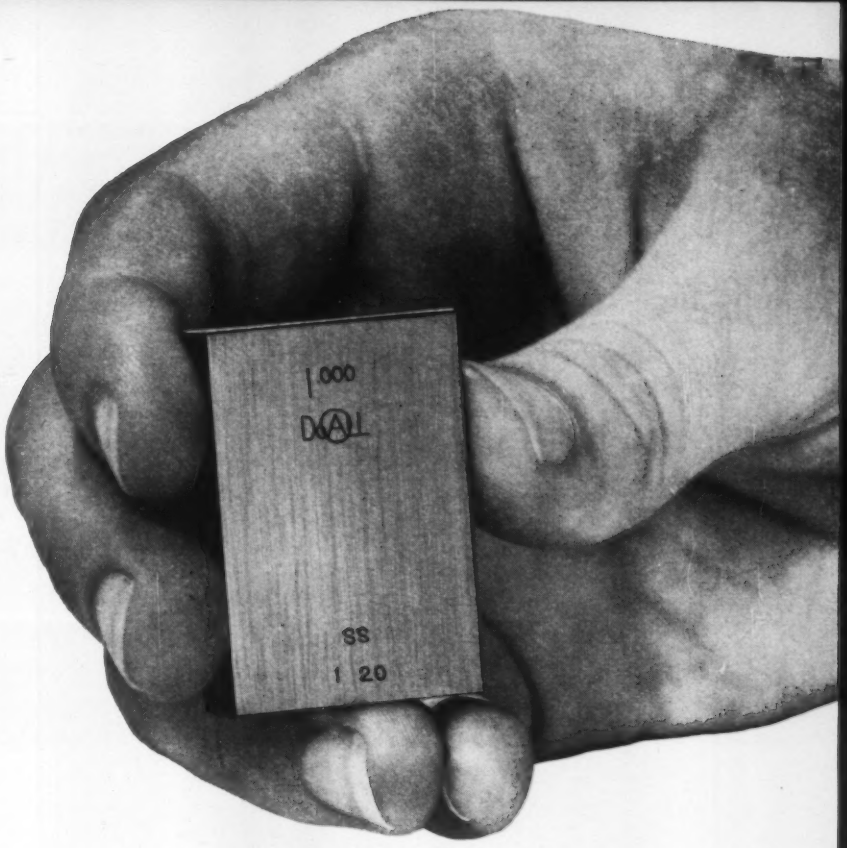
Why not take a good look at refractory metals to answer your needs. The identical properties that solve the problems of throat inserts for rockets and missiles can pay *you* dividends in die-casting dies and cores, hot-work tools, molds, and in many other ways.

Want the full story? Or experienced technical help in proving out your special ideas? Write Chemical & Metallurgical Division, Sylvania Electric Products Inc., Towanda, Pennsylvania.

SYLVANIA

Subsidiary of **GENERAL TELEPHONE & ELECTRONICS**

DoALL tells how Lindberg equipment helps produce stainless steel gage blocks



For the DoALL Company, Des Plaines, Illinois, heat treatment of their Stainless Steel Gage Blocks was a most formidable problem. For lasting accuracy these blocks require extremely hard, wear-resistant surfaces, free from growth or shrinkage, as provided by nitrided stainless steel. Case depth must be controlled accurately and the core maintained at full toughness free of stresses. DoALL found the answer to this problem with a Lindberg Gas Fired Vertical Cyclone Tempering Furnace with a Nitriding Retort.

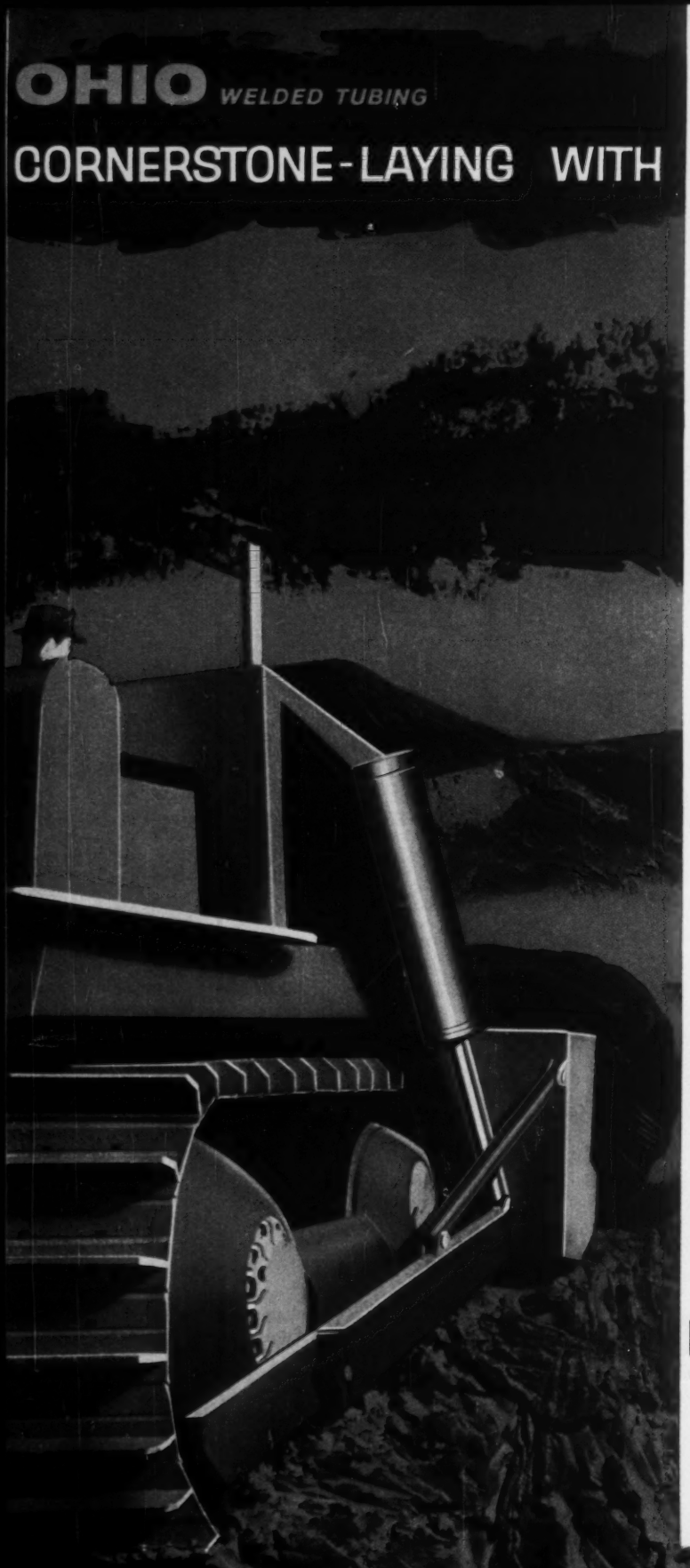
Norman Silver, Chief Metallurgist, and Lindberg Vertical Tempering Furnace at DoALL Company.

NORMAN SILVER, Chief Metallurgist says, "Our Lindberg equipment supplies the uniformity of heat distribution and the fast accurate control that is needed for the exacting requirements of our product. The furnace responds to control almost instantaneously and maintains the temperature within plus or minus 5°. Its 38" diameter by 36" depth handles 200 to 300 pound loads for the desired production. Results obtained have satisfied us completely with this, the latest of our Lindberg furnaces".

Lindberg provides the most complete line of heat treating furnaces, fuel fired or electric, large or small, for every heat treating requirement. Your Lindberg Field Representative (see your local classified directory) will be glad to consult with you on your heat treating requirements or write us direct. Heat Treating Furnace Division, Lindberg Engineering Company, 2452 West Hubbard Street, Chicago 12, Illinois.

Los Angeles plant: 11937 S. Regentview Avenue, Downey, California. In Canada: Birlefco-Lindberg Ltd., 15 Pelham Ave., Toronto 9, Ont. Also, Lindberg plants in Argentina, Australia, England, France, Italy, Japan, South Africa, Spain, Switzerland and West Germany.

LINDBERG
heat for industry



OHIO *WELDED TUBING*

CORNERSTONE-LAYING WITH

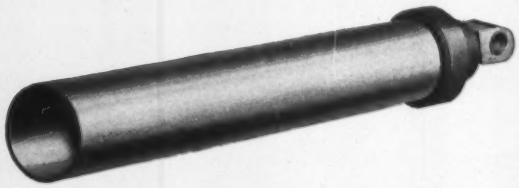
NO CEREMONY

In today's hustling, bustling construction business there's no time to stand on ceremony . . . no point in risking costly equipment failure.

To short-circuit mechanical downtime, leading construction equipment producers specify Ohio Tubing for power cylinders and fluid lines, mechanical and structural members. This gives equipment the heft and brawn to shrug off brutal, grinding punishment . . . gives equipment users a high degree of protection against disastrous delays.

You can strengthen your product — and its mechanical reputation — by specifying Ohio *Custom Made* Tubing. The name Ohio is the hallmark of the highest quality in tubing, both seamless and welded. And we're now able to deliver a broader range of welded tubing sizes, wall thicknesses and grades than ever before.

Let's not stand on ceremony. We want your tubing business — seamless to 7" OD, *welded up to 7½" OD*. For a fast start, contact your nearest Ohio representative, or send part drawings to the plant at *Shelby, Ohio—Birthplace of the Seamless Steel Tube Industry In America.*



Ohio Seamless offers the broadest parallel range of both welded and seamless quality steel tubing in the industry.

OHIO SEAMLESS TUBE

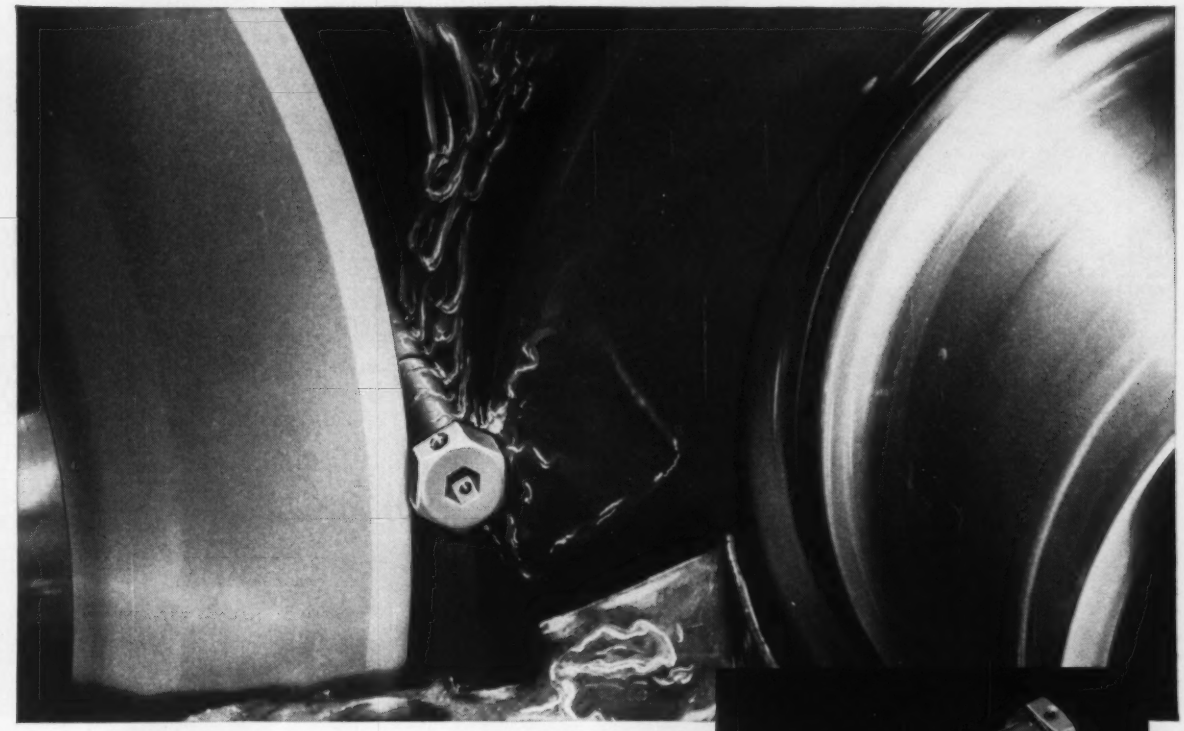
Division of Copperweld Steel Company • **SHELBY, OHIO**

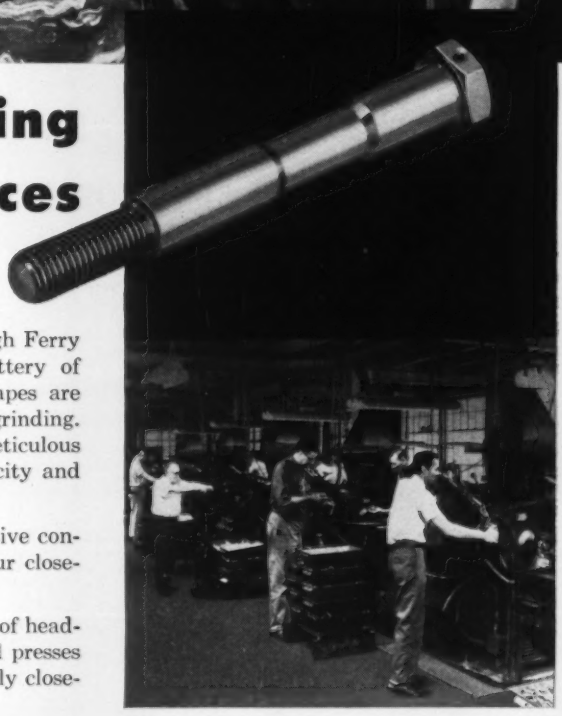
Seamless and Electric Resistance Welded Steel Tubing • Fabricating and Forging

Representatives in principal cities. Check leading directories: THOMAS', MacRAE'S, CONOVER-MAST, SWEET'S, FRASER'S.

A-3305A

Close-Tolerance Fasteners Cost Less at Ferry Cap!





. . . Centerless grinding guarantees tolerances of .0002"

Precision obtainable in no other way is available through Ferry Cap & Set Screw Company's exceptionally large battery of centerless grinding equipment. The most intricate shapes are exactly and automatically reproduced by contour grinding. Continuous wheel dressing with diamond styli and meticulous checking guarantee tolerances of 0.0002" for concentricity and straightness, with surface finishes that are flawless.

Our years of experience in the production of automotive connecting rod and shackle bolts enable us to produce your close-tolerance fasteners rapidly . . . with savings for you.

In addition, we are equipped with an unusual variety of headers, milling machines, boltmakers and multi-station drill presses that enable us to produce very complex and exceptionally close-tolerance fasteners with unusual economy.

Interested in the possibility of *specials* at near standard prices? Then start saving now with a call to Ferry Cap today!

F-C

Ferry Cap & Set Screw Company
2151 Scranton Road, Cleveland 13, Ohio

your LODGE-ical CHOICE for PRODUCTION

LODGE & SHIPLEY LATHES

Lodge & Shipley CVA POWERTURN and HI-TURN Lathes offer the Canadian user exceptional advantages in performance and price, combining these important factors: modern American design, British-built at British prices and serviced locally throughout the Dominion.

Even more basically, these lathes give accuracy and rugged strength combined with greater precision and operating convenience.

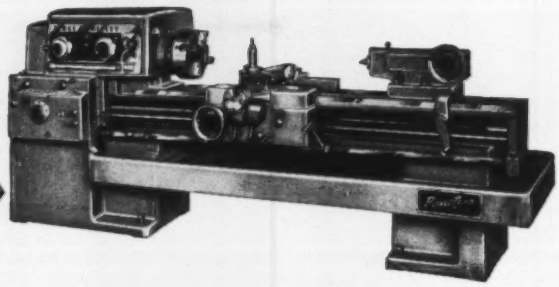
Select either fast, foolproof Speed Dial Headstock with but two dials for fast setting of speed change levers or POWERSHIFT PRESELECTOR Lathes with single dial preselection of cutting speeds and fast, automatic remote shifting.

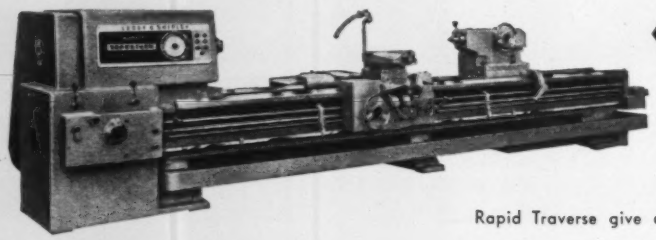
POWERTURN Lathes are produced in 1610 (13" HD), 2013 (16" HD) and 2013-17 (20" STD) sizes in engine, toolmaker, gap, 45° and 90° tracer controlled types.

POWERTURN Lathes are also available in 2516 (20" HD), 2516-27 (20"/30" Raised), 3220 (25" HD) and 3220-32 (25"/35" Raised) sizes.

Lodge & Shipley offers a choice of tracer controlled lathes. . . . with 45° or 90° tracing slide on all POWERTURN models. Lodge & Shipley POWERTURN Hollow Spindle Lathes are widely used for machining long workpieces which are chucked through the hollow spindle. Available with 8⅞" or 11½" holes in spindle in 2516 (25" STD) and 2516-27 (20"/30" Raised) Lathes.

Powerturn

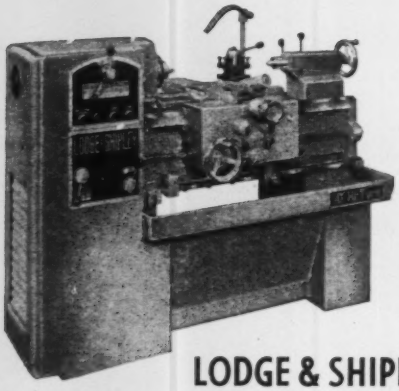




LODGE & SHIPLEY SUPERTURN

2516 (28") and 2516-21 (32½") LATHE

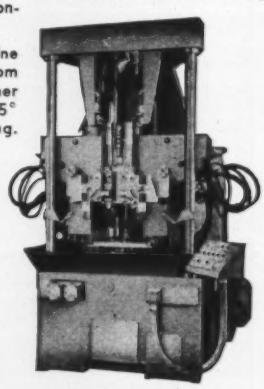
This lathe is extra big, extra powerful . . . designed for future turning needs with speeds from 8 to 1528 rpm, capacity to 60 hp. Powershift Preselect and 4-Way Power Rapid Traverse give ease and speed of handling equal to much smaller lathes.



LODGE & SHIPLEY 1307 Hi-Turn (10") Lathe

The Lodge & Shipley 1307 HI-TURN (10") Lathe is completely new in size, design, utility and even in its low price. It provides high speed turning, boring and facing capacity where the use of a leadscrew is of no consequence.

The HI-TURN Lathe is extremely rugged and has nine geared speeds with a high spindle speed of 3000 rpm and 5 hp, giving the ability to handle newer, tougher metals at production rates. Also available with 45° hydraulic tracer slide and completely automatic cycling.



LODGE & SHIPLEY No. 12 VERTICAL FLOTURN

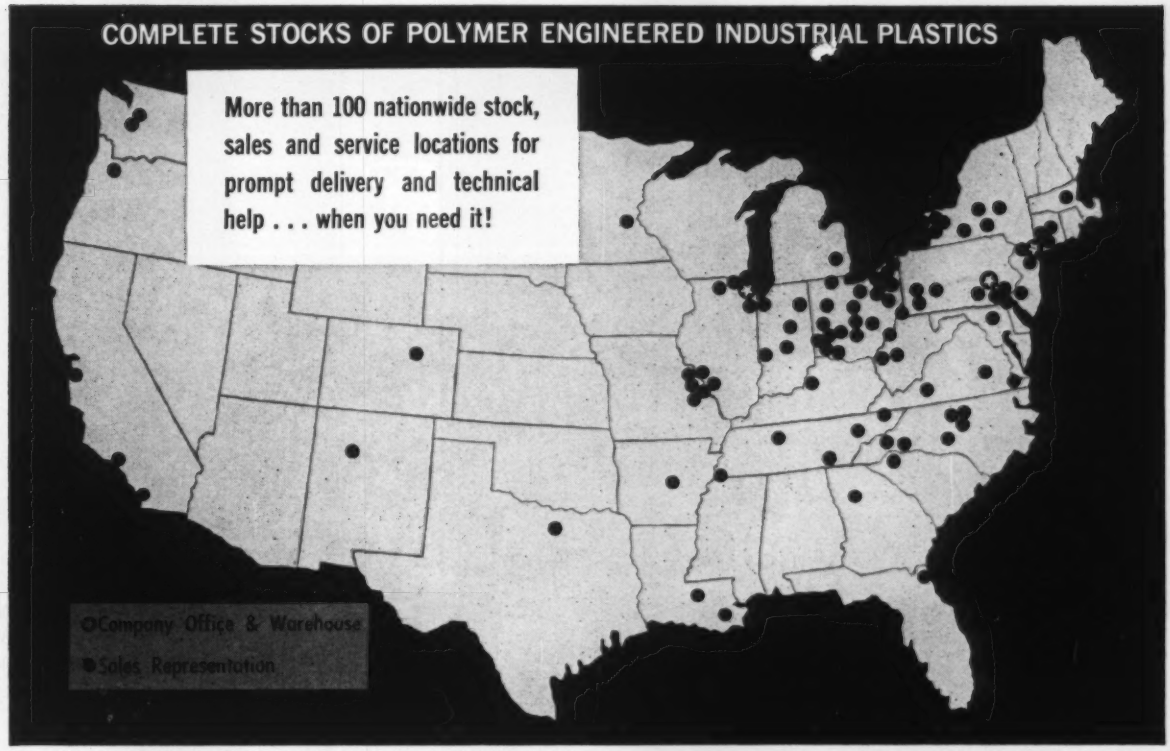
FLOTURN, originated by Lodge & Shipley, is a completely new precision metal forming production process without dies. Simple blanks are axially rolled into complex forms, saving time, material and tooling cost while adding to part strength and hardness. No. 12 Vertical FLOTURN allows completely automatic production; may be used with other metal forming processes for maximum speed and economy. Also available: No. 12 Horizontal, No. 24, No. 40 and No. 60 Horizontal models and custom-built larger machines for parts to 80" in diameter. Sub-contract service also available.

COMPLETE LITERATURE AVAILABLE

. . . write for detailed literature on any of the Lodge & Shipley Lathes or for Condensed Catalog. Address: Nearest office, J. H. Ryder Machinery Co., Ltd., or The Lodge & Shipley Company, 3073 Colerain Avenue, Cincinnati 25, Ohio, U. S. A.

Lodge & Shipley

POLYPENCO AT YOUR BACK DOOR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When it comes to the really demanding jobs for industrial plastics —where deviation from the highest uniform quality may mean trouble—it pays to specify POLYPENCO. Solve your problems of in-plant production and end-product reliability today with the consistent high quality of POLYPENCO plastics, processed for uniformity in physical, chemical and electrical properties.

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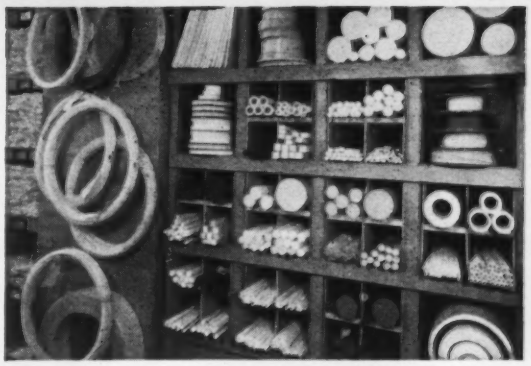

Stock Shapes for Fast, Low-Cost Fabrication

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POLYPENCO Teflon†
FLUOROSINT® Sintered TFE
POLYPENCO Q-200.5 (cross-linked styrene)
POLYPENCO Penton‡
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Sintered Plastic Parts

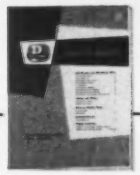
FLUOROSINT® Sintered TFE
FERROTRON® Ferromagnetic Materials
NYLASINT® Sintered Nylon

Molding Resins

NYLATRON® GS

†Trademark Du Pont
‡Trademark Hercules Powder Co.

POLYPENCO *industrial plastics*



IA-1/5
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When you buy Timken® bearings you are investing in a better bearing value for today and in the future

HAVE you had occasion to compare the sizes of Timken® tapered roller bearings used in modern automobiles and trucks with those used 10 or 25 years ago?

Today's cars and trucks are a lot more powerful, a lot heavier and a lot more dependable, yet the bearings are smaller and more economical. That's possible because the Timken Company has found ways to pack more capacity into less space . . . by developing better bearing steels, better design proportions, new ways to produce precision geometry and by investing in long term fatigue research.

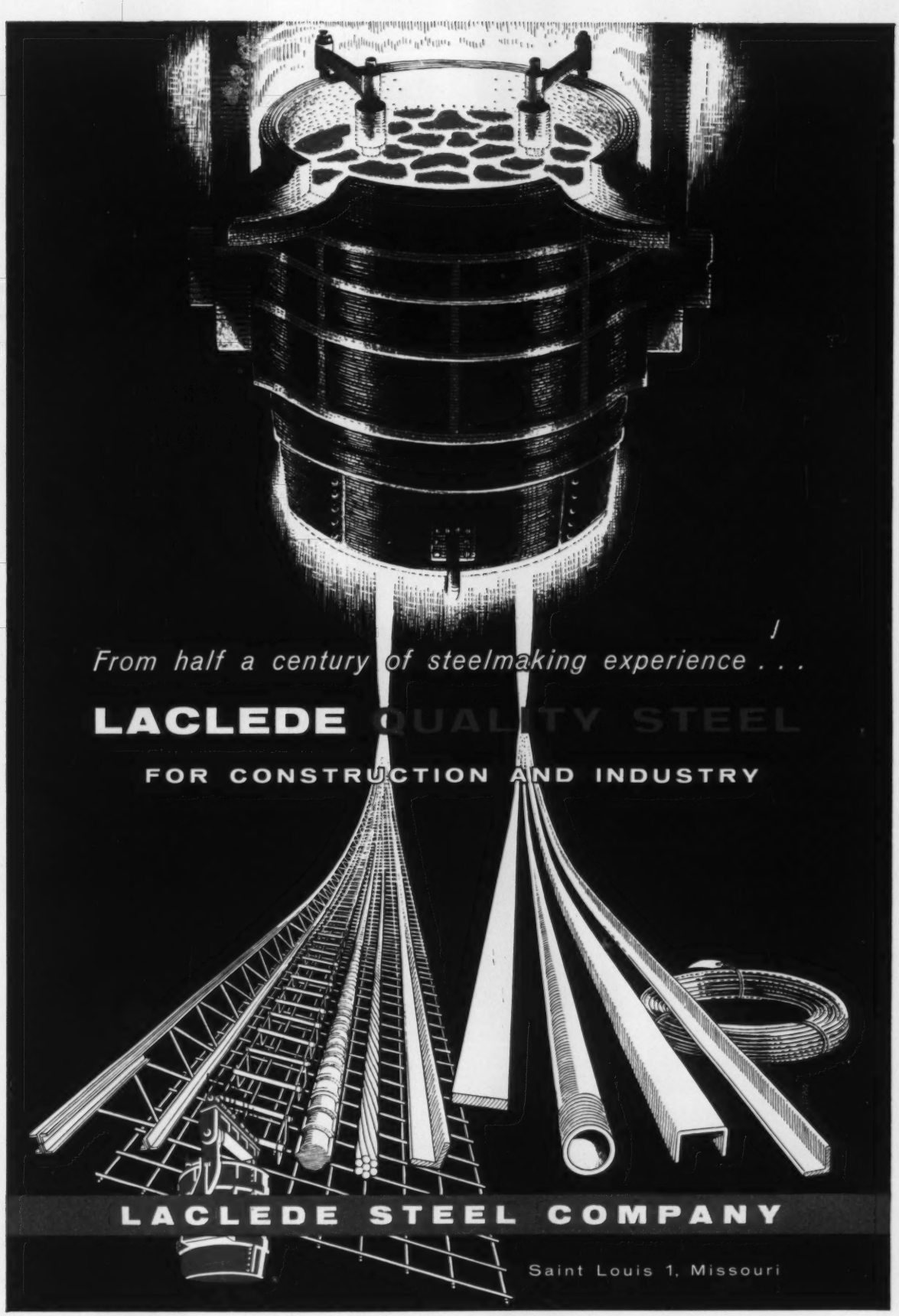
Underlying developments of this kind is the philosophy of the Timken Company—*Service.* Not just institutional service to industry, but service on an individual basis. The on-the-spot bearing service that only a thoroughly trained Timken Company engineer can give.

Timken Company salesmen are graduate engineers—able and eager to give on-the-spot professional assistance to help you build the most serviceable, the most reliable, the most saleable machines.

This dynamic partnership with industry has enabled the Timken Company to become the world's largest manufacturer of tapered roller bearings with an enviable reputation for product excellence, pioneering of new applications and bearing industry leadership. It explains in part why Timken bearings are preferred by your engineers.

An important share of every Timken bearing sales dollar is plowed back into better research, testing and production facilities. This impatience with just "good enough" is why practically every major tapered roller bearing development has come from The Timken Roller Bearing Company. Invest more of your bearing dollars with the leader—it will repay you in better products that cost less.

The Timken Roller Bearing Company • Canton 6, Ohio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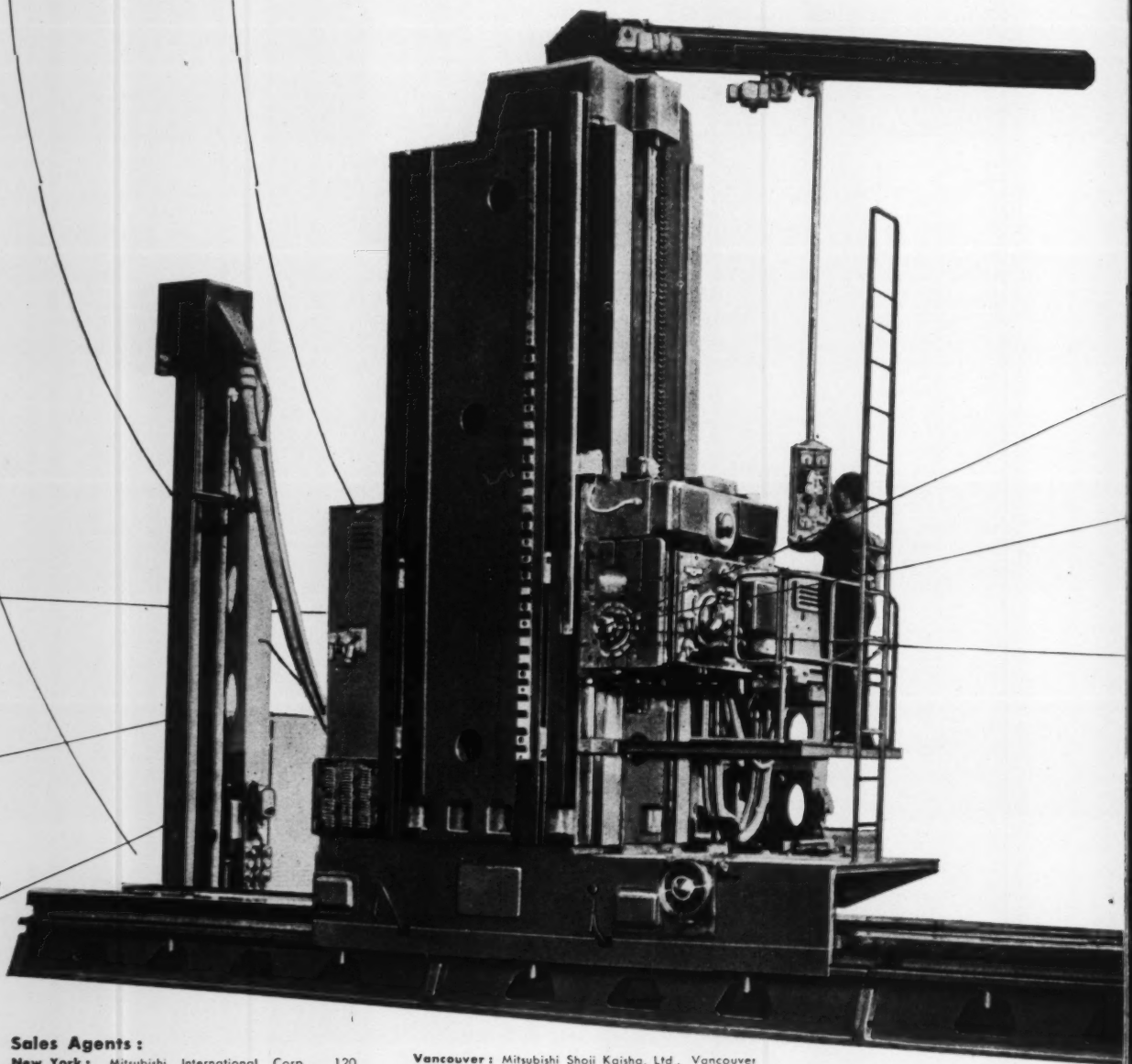
MITSUBISHI INNOCENTI CWB

milling boring

MITSUBISHI ZOSEN KABUSHIKI KAISHA (Mitsubishi Shipbuilding & Engineering Co., Ltd.) take pleasure in announcing the conclusion of a license agreement with INNOCENTI S.G. of Milano for the manufacture and world-wide distribution of the universally known INNOCENTI-CWB MILLING, BORING & COMBINED MACHINES. The machines will be produced in Floor Type, Planer Type and other Combination Types, the diameters of spindles being 140 mm for milling and 95 mm for boring.



Sales Agents :

New York : Mitsubishi International Corp., 120 Broadway, New York 5, N.Y.

Los Angeles : Mitsubishi International Corp., Los Angeles Branch, 606 South Hill St., Los Angeles 14, Calif.

Chicago : Chicago Representative of Mitsubishi International Corp., Room 1803, Prudential Bldg., 130 East Randolph Drive, Chicago, Ill.

Vancouver : Mitsubishi Shoji Kaisha, Ltd., Vancouver Branch, 210 Toronto Dominion Bank Bldg., 717 West Pender St., Vancouver 1, B.C.

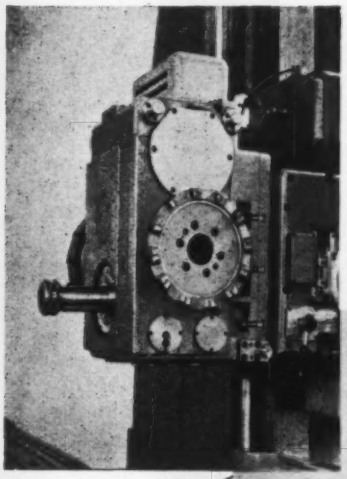
London : Mitsubishi Shoji Kaisha, Ltd., London Branch, 104/106 Leadenhall St., London, E.C. 3

Paris : Paris Liaison Representative of Mitsubishi Shoji Kaisha, Ltd., c/o Mr G. Bouvet, 5, Rue Boudreau, Paris 9

Duesseldorf : Deutsche Mitsubishi Export & Import-Gesellshaft m.b.H., 12 Grunstrasse, Duesseldorf

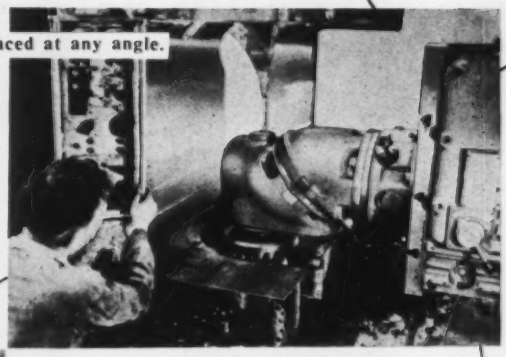
Melbourne : Mitsubishi (Australia) Pty., Ltd., Melbourne Office, 1st Floor, Houghton House, 543 Little Collins St., Melbourne, C. 1, Victoria

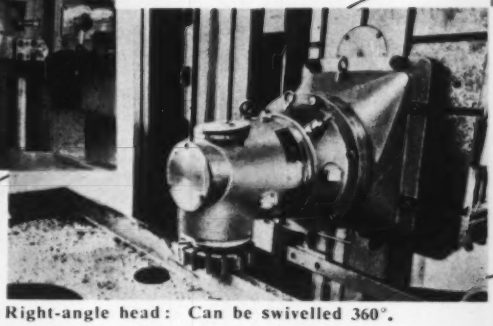
and combined machines



Milling can be done on three faces by the three way head.

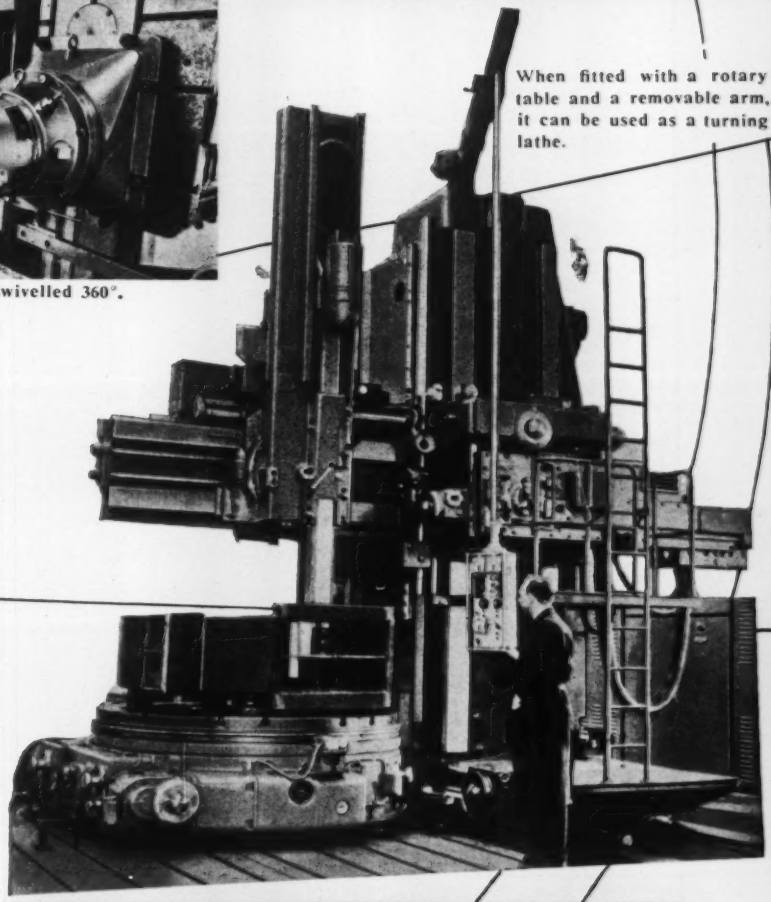
Universal head: Can be placed at any angle.

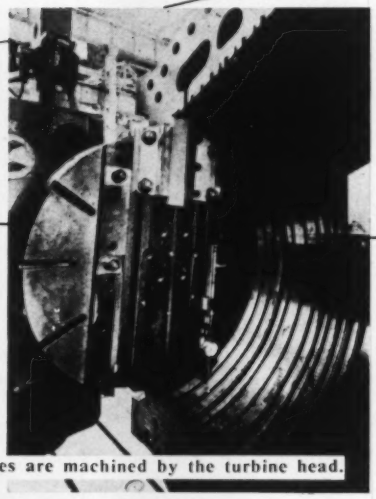




Right-angle head: Can be swivelled 360°.

When fitted with a rotary table and a removable arm, it can be used as a turning lathe.





Grooves are machined by the turbine head.

MITSUBISHI ZOSEN

(MITSUBISHI SHIPBUILDING & ENGINEERING CO. LTD.)

Head Office: Marunouchi, Tokyo, Japan

Machine Tool Manufacturing Division:

HIROSHIMA PRECISION MACHINE WORKS

Hiroshima, Japan

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No longer needed
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The inspector's hearing and his judgement have not always been dependable in discriminating between gear noise which may be tolerated and that which may not. In fact, these human qualities are not consistent even in the same individual at all times.

To avoid such inconsistencies, the Red Ring Sound Tester may now be equipped with an electronic broad-band amplifier. Sound intensity is measured and the result indicated on a graduated visual scale. Thus, it is simple to establish sound tolerance limits independent of the human equation and maintain uniform quality.

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ORIGINATORS OF ROTARY SHAVING, GEAR HONING AND ELLIPTOID

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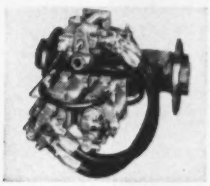
Your immediate attack against rising costs



IT'S A FACT: The unique Towmotor Towmostatic Drive guarantees handling flexibility, smooth operation and maintenance benefits far greater than any other fork truck drive.

YOUR SHORTCUT TO EXTRA PROFIT is through planned mass-handling that puts the right product in the right place at the right time. Integrating TOWMOTOR fork lift trucks into your production operation is the fastest way to lower costs and increase profits. Write for case studies that show you how similar companies are reducing costs through more effective handling operations. TOWMOTOR CORPORATION, CLEVELAND 10, OHIO.

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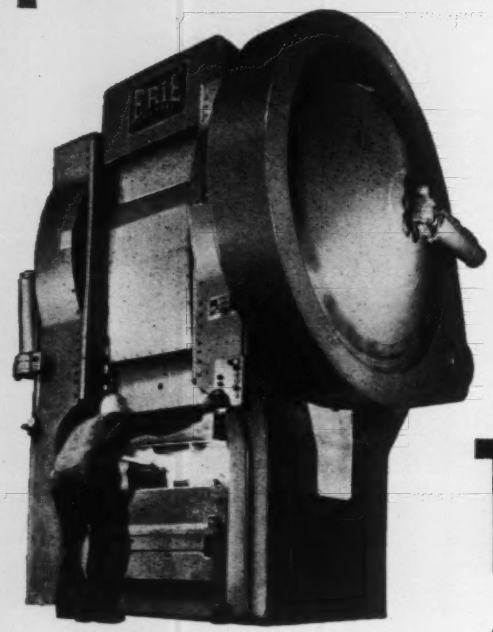
Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation

WANT TO AUTOMATE YOUR FORGING OPERATION?

You set your production goal . . .



ERIE WILL BUILD THE PRESS

Set your sights on higher output . . . Erie Foundry makes it possible to achieve it, with a high-volume automated forging press. As the first company to automate forging, Erie specializes in custom-designing and building automated presses in capacities up to 8,000 tons.

A single Erie-built automated press, with only one operator-observer, can actually triple your present production rate equalling the output of three regular forging presses and nine production men!

Trimming, too, can be accomplished in a single production cycle. With billet supply and finished part removal conveyorized you can achieve a production volume of, say, 1200 track-link forgings per hour.

To meet your specific needs, Erie Foundry will design a machine for high volume production of such parts as connecting rods, gear blanks, automotive and tractor valves, pinions, track links and wheel hubs.

For the complete story, phone or write Mr. R. E. Sanford, Erie Foundry Company, Erie 1, Pa.

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ERIE FOUNDRY COMPANY SINCE 1895

ONE OF THE GREAT NAMES IN FORGING

Manufacturers of Forging Hammers • Forging Presses • Hydraulic Presses • Trimming Presses

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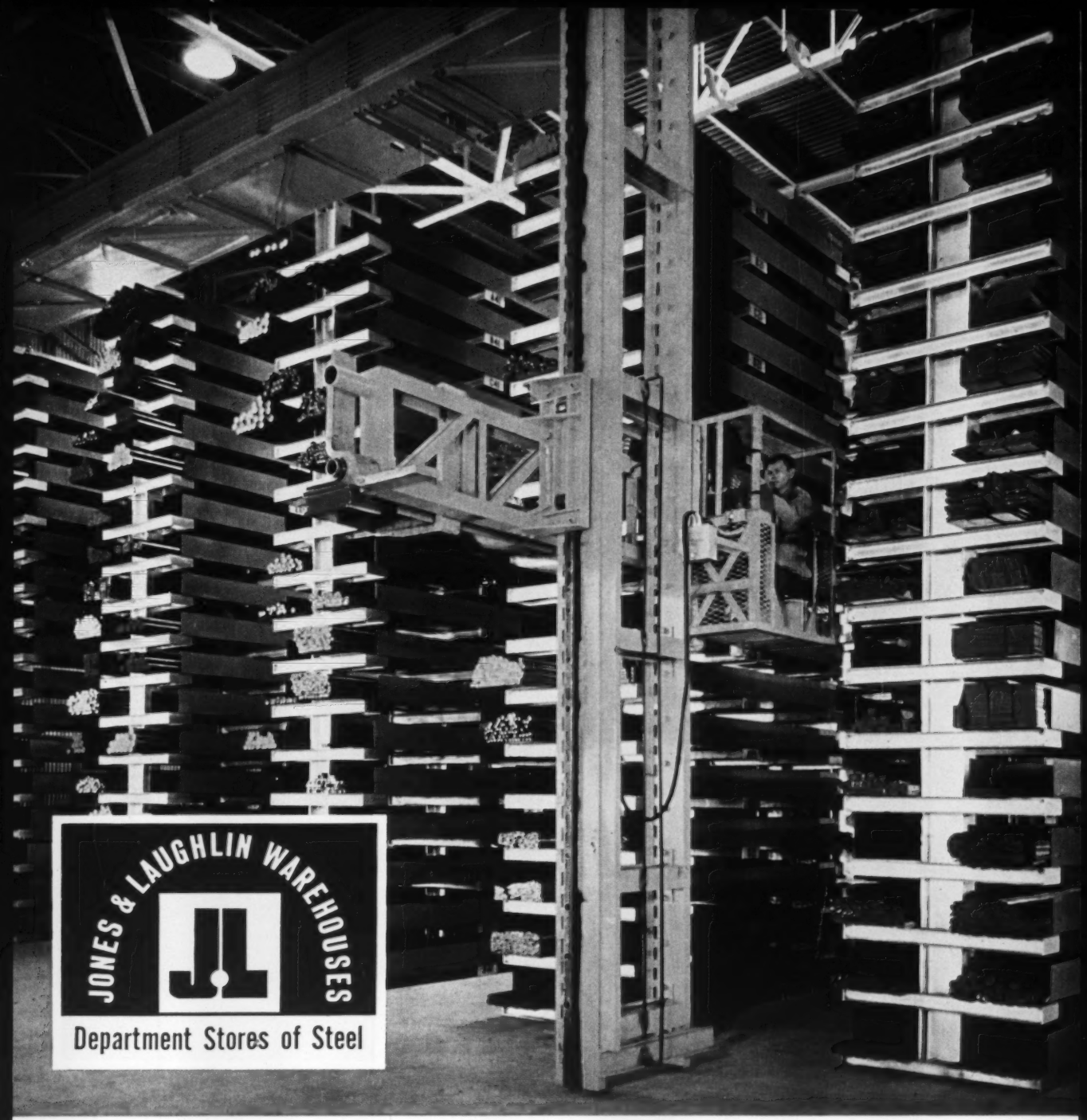

J & L's new Cleveland warehouse speeds service with ultramodern equipment.

J & L Steel Service Centers—efficient and dependable. Ultramodern equipment at the Department Stores of Steel pays you extra dividends. This Trak-Rak, for example, is a super filing cabinet with 1350 drawers for storing cold finished bars and tubing—the most efficient setup of its kind. Equipment like this, unparalleled expansion, new buildings, the latest machinery and ready-to-go stocks of carbon steel, special steels and stainless—all add up to faster, more efficient service for today's J & L customers.

Take advantage of the streamlined, time-saver service J & L offers. Count on the Department Stores of Steel. You'll get exactly what you want—when you want it.

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to cut costs when cutting metal...

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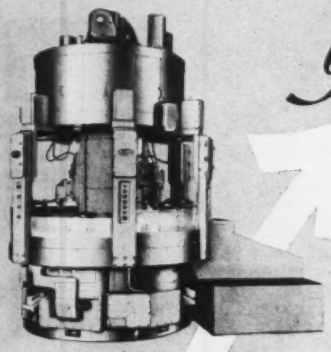

Mult-Au-Matic, Type "L"
10" with 6, 8, 12, or 16 spindles, 14" and 18" with 6 or 8 spindles.

Day in and day out — in metalworking plants around the world — modern machine tools designed and built by The Bullard Company are proving their ability to produce more in less time — thus, reducing the cost per piece.
It will pay you to investigate and compare the many advantages offered by modern Bullard machine tools.

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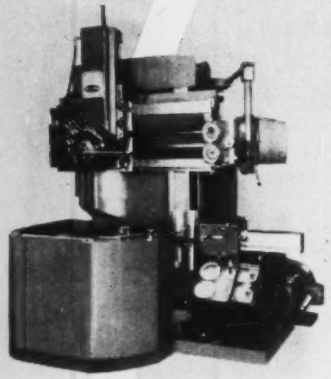
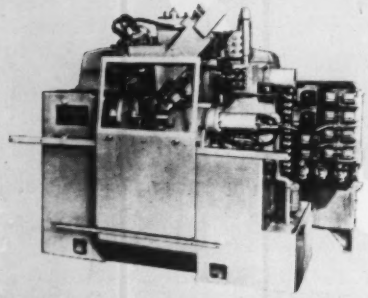


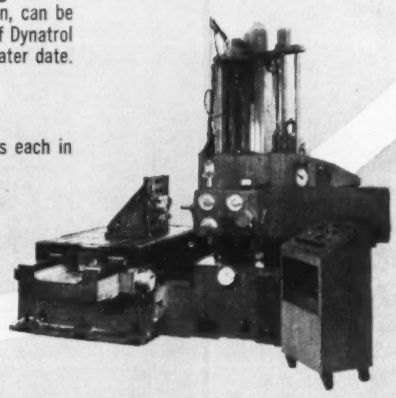
Dynatrol V.T.L. and Vertical Boring & Turning Mill
26" to 86" in 10" increments and 108", 124", and 144" table sizes.

Man-Au-Trol V.T.L. and Vertical Boring & Turning Mill
For fully automatic operation, can be applied to any or all heads of Dynatrol at time of ordering or at a later date.

Dynamill H.B.M.
In 3", 4" and 5" spindle size. Many combinations of bed length, table size and vertical travel.



Hydra-Feed Lathe
Automatic and tracer models each in four sizes.



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We can guarantee sheets that are perfectly flat, straight, parallel on sides, and free from buckle or camber.

A tremendous variety of screens. Our modern tool and machine shop is constantly building new dies placing us in a position to construct special dies as conditions may demand.

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90 years of experience. Large enough for big jobs, small enough for personal attention.

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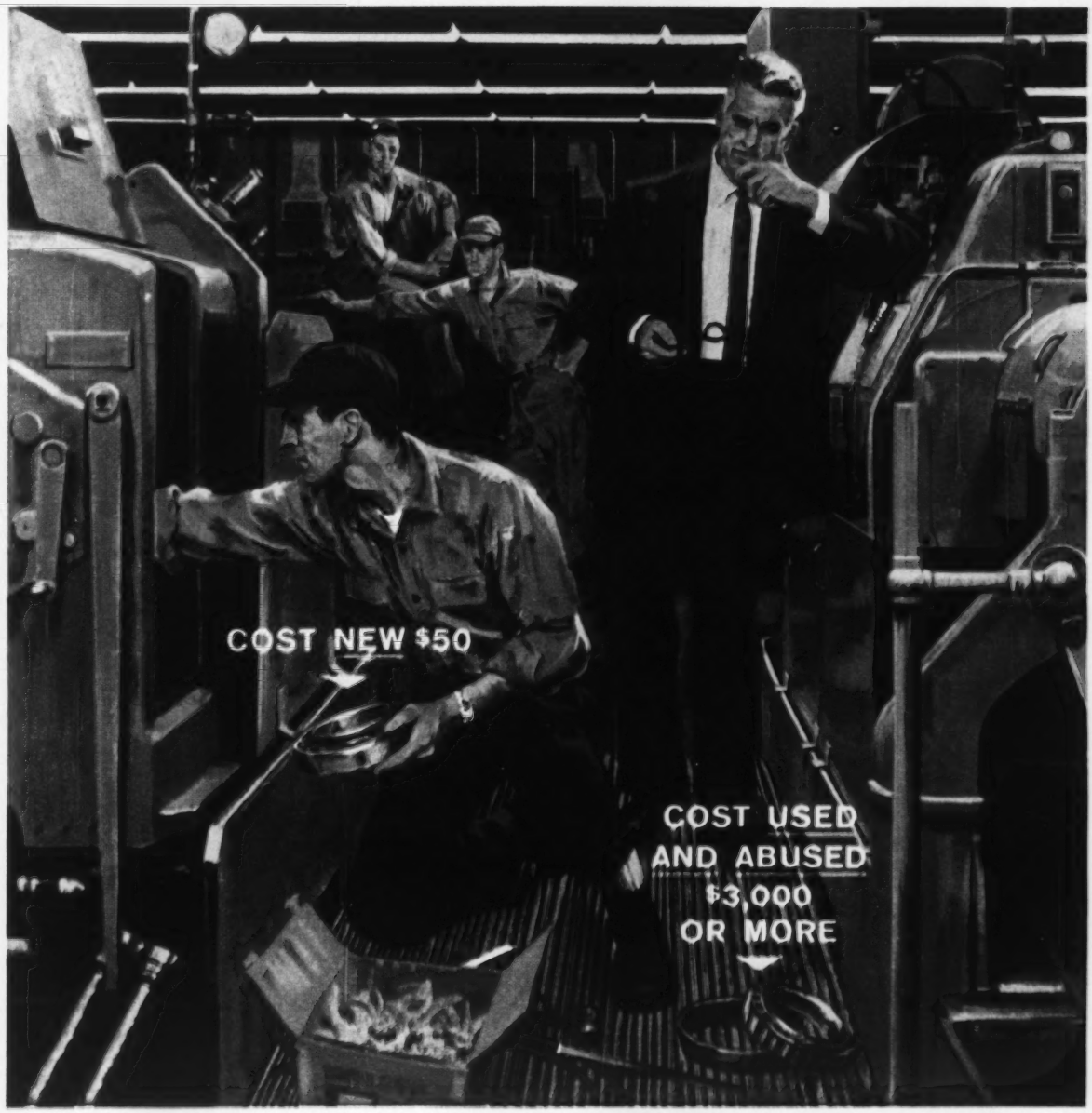


That real cost figure tells him why lubrication is a management responsibility

When a bearing fails, a new one will cost, say, $50. But if that failed bearing shuts down your entire production line, the resulting downtime and lost production can run the bill up to $3,000 or more. And that's your *real* replacement cost.

Only management can effect a cure for this severe bite out of profits. Here's why:

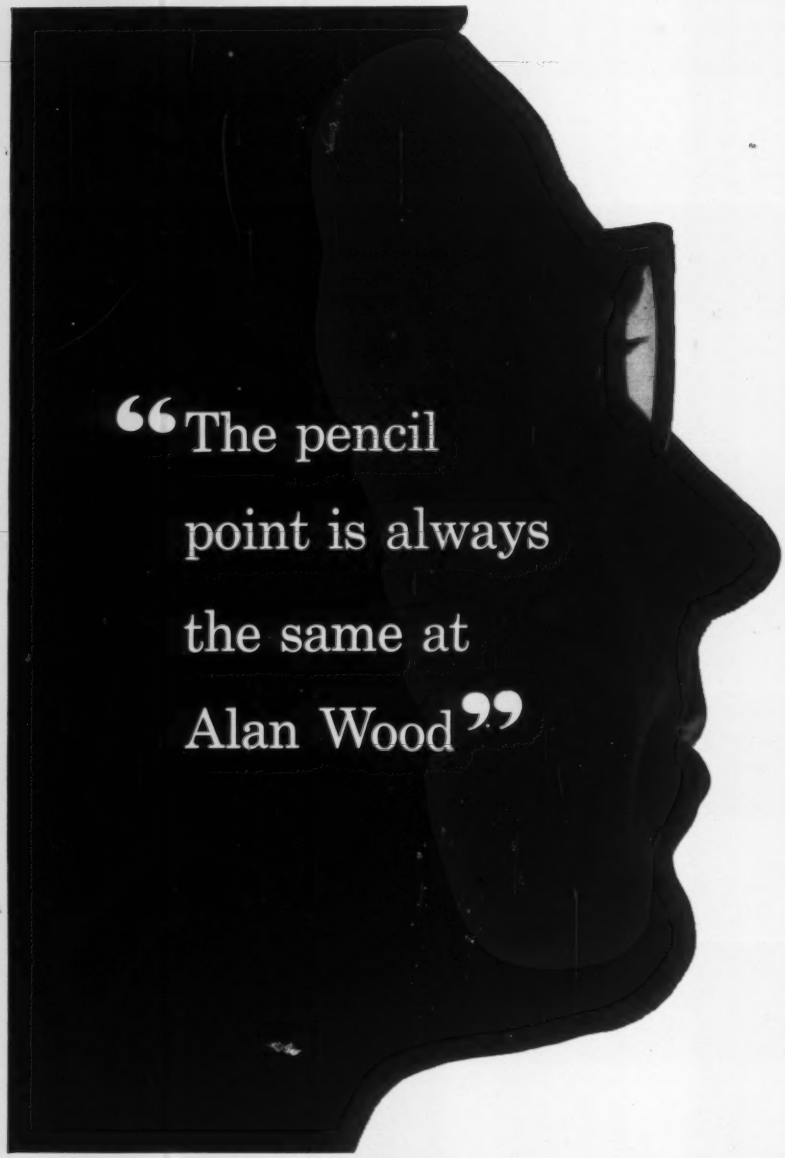
A failed part is only a symptom; very often the *cause* is improper lubrication. The part can be replaced but the cause remains. The machine will fail again.

Like any plant-wide operation procedure, an organized lubrication system—which will prevent the vast majority of equipment failures—has to come from the top. For this reason, lubrication is a management responsibility.

For a preview of what Organized Lubrication can accomplish in your plant, we invite you to see our new movie "Stop Loss with Organized Lubrication." For an early showing, write:

Texaco Inc., 135 East 42nd Street, New York, N.Y., Dept. IA-170.

LUBRICATION IS A MAJOR FACTOR IN COST CONTROL



"Doing business with Alan Wood, we never have to worry about variations in pricing policy. Whether steel is short or plentiful, the pencil point is always the same."

That's the way one Alan Wood customer said it, and we appreciate the acknowledgement. We do believe in consistent pricing policy. Moreover, Alan Wood is geared to give your order prompt attention without red tape delays. Your quality goes up, your costs and rejects go down, when you use dependable Alan Wood plate, sheet and strip.

When your metallurgical requirements need speedy, reliable analysis, ask for an Alan Wood study. Your Alan Wood representative is always available, ready to help.

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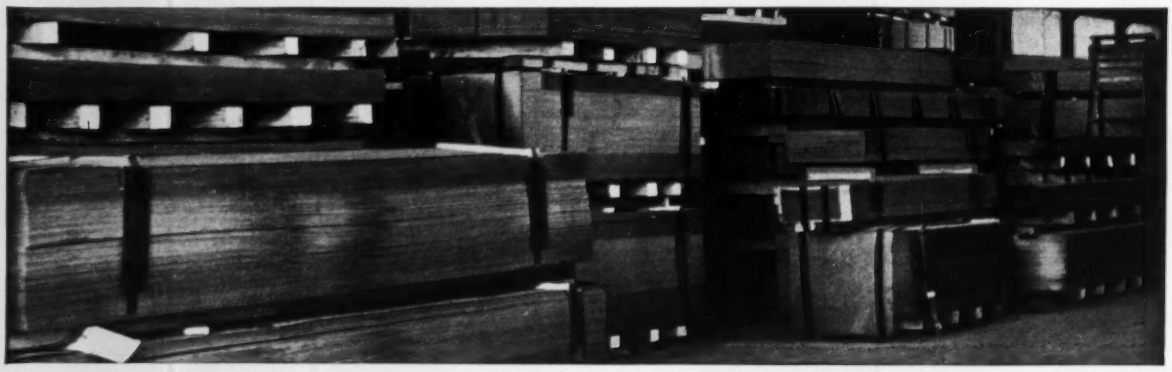


SHORT ARC

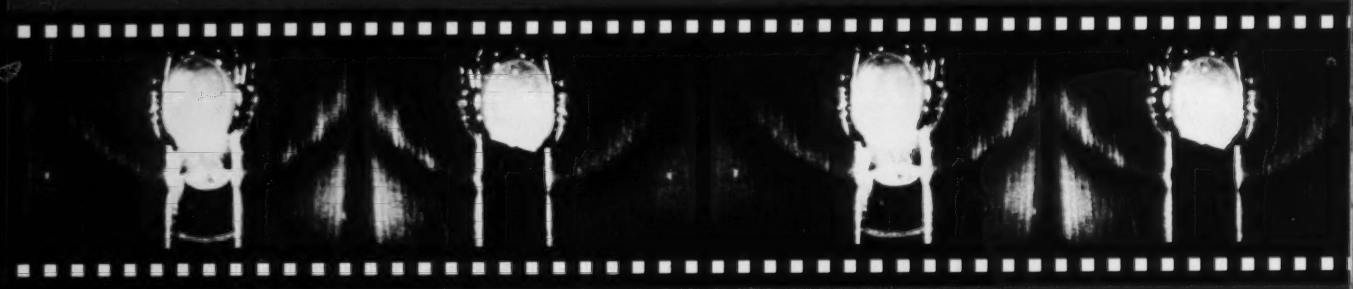
QUALITY SHEET-METAL WELDING

Sheet-metal welding has been *possible*, but quality welds were difficult and time-consuming. Now, LINDE's new Short Arc process—combining specialized power source characteristics, shielding gas, and semi-automatic torches—easily delivers *quality* and economy

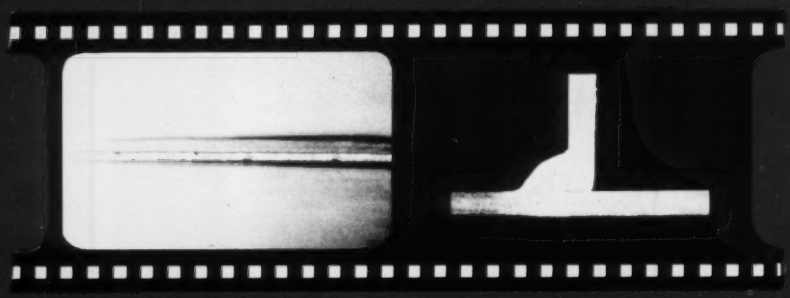
- **. . . on all sheet-metal thicknesses**
- **. . . with minimum distortion—far less than any other process**
- **. . . tolerating more than 100% gaps—even ¼-in. gaps on ⅛-in. material**
- **. . . producing 30 ft. of fillet welds for only a pound of wire and four cubic feet of gas**
- **. . . as fast as 20 inches per minute on 16-ga. sheet**
- **. . . as easy to control as a ball point pen**
- **. . . permitting all-position welding with the same settings**
- **. . . and *consistently* cleaner, smoother, more-uniform welds than any other process.**

See the next page for details.

SHORT ARC



Here is a typical LINDE Short Arc weld in the making . . .



a finished bead, and a weld cross-section . . .

Notice the intermittent "shorting," the smooth, finished bead, the uniform penetration. No spatter. No clean-up. No finishing. Welders trained in minutes. Short Arc employs precisely controlled, low-voltage pinpoint-arcs shielded by an argon-CO_2 gas mixture. Shorting the arc lets the puddle cool, *minimizing* heat distortion and *controlling* burn-through for ideal penetration. Short Arc works on all common metals and their alloys, on carbon steel, stainless, aluminum and magnesium . . . on all types of joints . . . in all positions.

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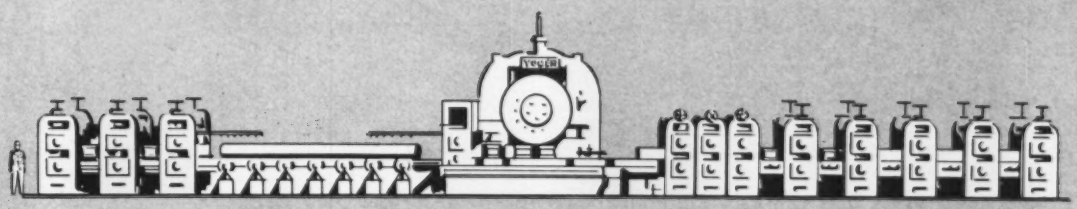
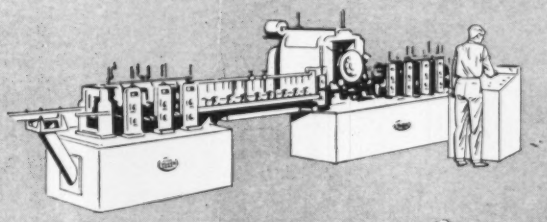
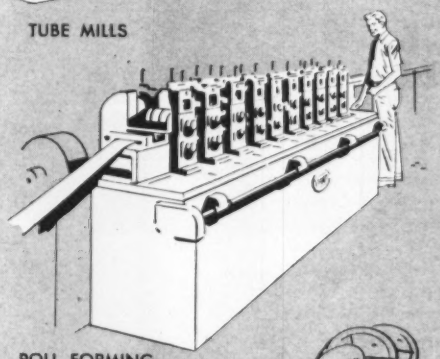


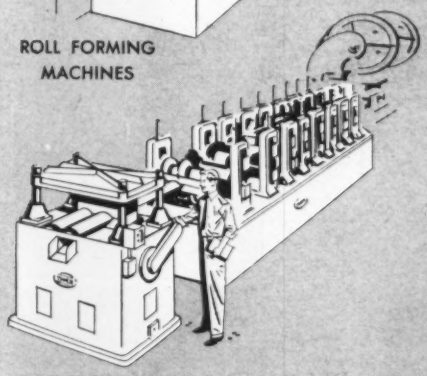
PIPE MILLS



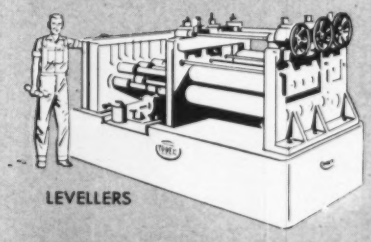
TUBE MILLS



ROLL FORMING MACHINES



CUT-OFFS



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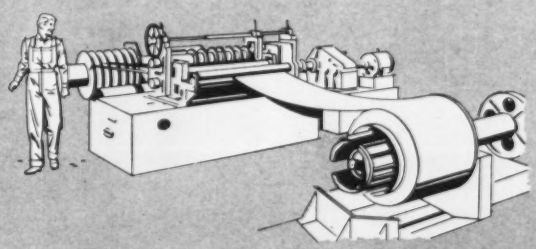

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Metalworking Newsfront 6

A MAJOR PRESS BUILDER IS SET TO ANNOUNCE the acquisition of a West Coast producer of high-energy forming equipment. The company makes close-tolerance "forgings" using expanded gas to achieve extremely high ram pressures. Although the acquisition hasn't been officially announced, the press builder has already received inquiries from abroad.

THE INFLATION BUG STILL BITES. This time the bite is felt in the cost-of-living area. Consumer prices for November rose 0.1 pct to a record 127.4 pct of 1947-49 averages. And Ewan Clague, Commissioner of Labor Statistics, predicts a continued rise of 1 to 2 pct in 1961.

ADJUSTING TO CHANGED MARKETS is the big problem facing management in the new year, says W. Cordes Snyder, Jr., chairman and president, Blaw-Knox Co. He claims this problem is of greater management concern than the probable level of the year's business. "In the period ahead," he says, "profits will accrue to the company that best serves its markets, not exploits them."

THE COMEBACK FOR THE MACHINE TOOL INDUSTRY may begin in 1961, says the Value Line Survey. Four reasons are cited: A general business upturn after mid-1961; the auto industry will step up its buying once its labor contract is signed; liberalized write-offs appear on the political horizon; subsidiary plants abroad will protect world-wide competitive position of U.S. tools.

PRICES AND INVENTORIES CONTINUE DIP in December, according to year-end survey of the National Assn. of Purchasing Agents. Some 14 pct of survey committee members report lower prices; 80 pct say "no change," and 6 pct tell of slight increases. Almost 90 pct say they are still holding the line or cutting inventories.

THE FOREIGN MARKET FOR MAJOR APPLIANCES is a big one. And the Commerce Dept. has published a guide--Major Household Appliances in Selected Foreign Countries--to help U.S. appliance makers sell in 30 countries. Field offices of the Dept. of Commerce have copies.

ECONOMY MOVES BY INDUSTRY, in face of intense profit squeeze, are causing a shift in marketing gears. One survey shows almost 70 pct of companies involved in formal cost-cutting programs. Says one big buyer; "High value, not low price, is the sales clincher."

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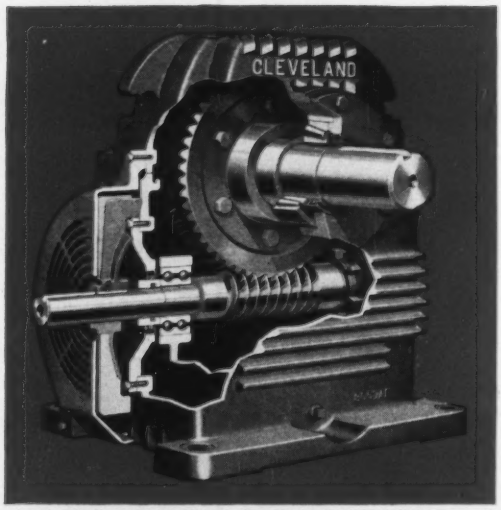

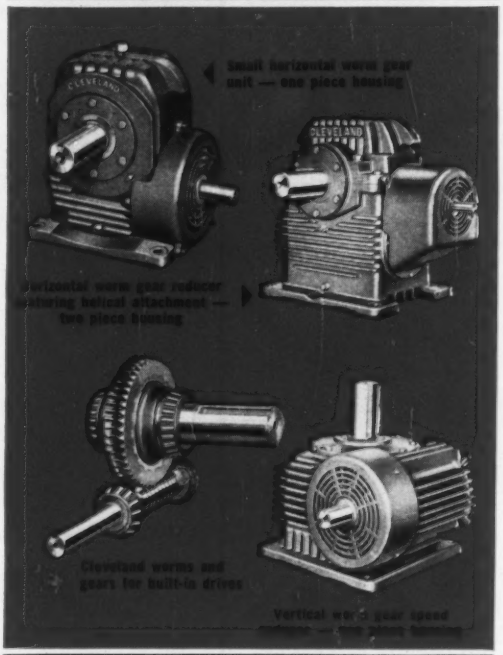
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Recession That Wasn't There Should Fade in Early Fall

There are a lot of "if's" in the outlook for 1961. But production rates should be on the way up by early autumn.

The steel industry, the first to feel the recession, should make its turnaround earlier.
By Tom Campbell

■ There is one ominous note about the economic outlook for 1961. It has nothing to do with business. It is the scary fact that almost all economists, business soothsayers, and assorted guesstimators pick mid-1961 as the "end" of the recession. The record shows popularly-held ideas are subject to serious question.

A side effect in the same batch of opinions is a further confusing fact that most of these fellows—only a few months ago—denied there was a recession. Now they concede there is one.

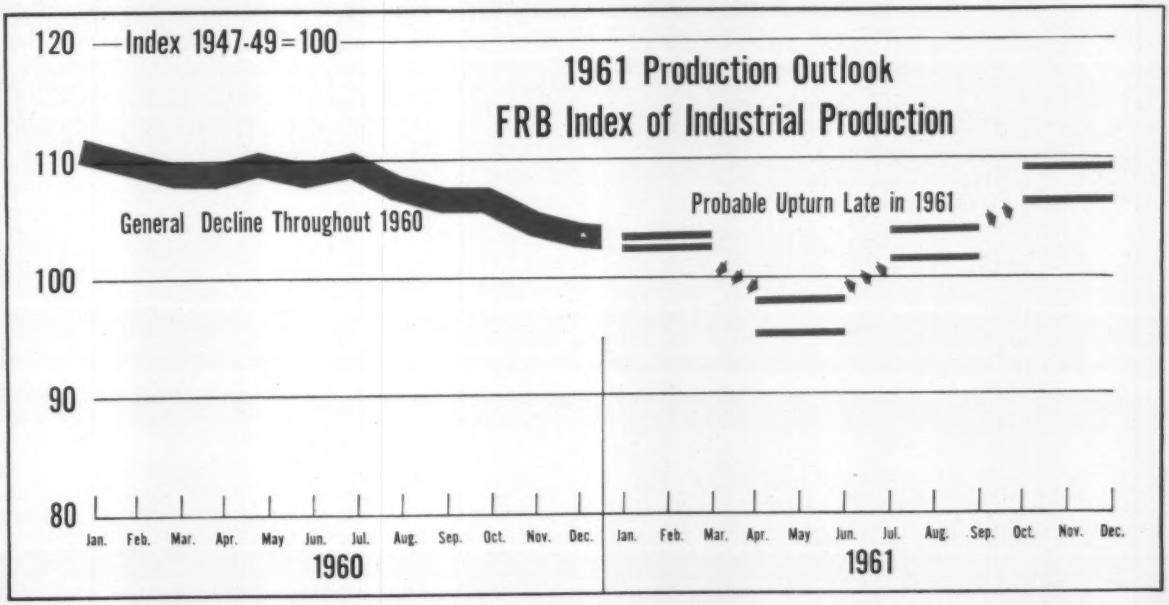
Form Sheet—A good way to put the general economic outlook this year is in terms a race track tout would understand—like bookie or parimutuel odds. That at least will give you a chance to go to work.

The recession we are now in started about last May or June. It should be at the end of its downturn by the middle of this year. There are a lot of "if's." But the odds are about 6 out of 10 that the Federal Reserve Board index of production will start to turn upward by next August; and probably dramatically by the week after Labor Day. (Chart, here, shows the optimist's viewpoint.)

Steel's Part—The steel industry should see its turnaround date some time in March or April. It has been in the dumps much longer than has the general economy. The severe experience of the steel industry has caused some people to question the strength of this basic industry. We dissent. There is nothing basically wrong with steel that an end to the current cycle will not cure.

Black news in business will darken the first quarter of this year. Steel will not rise to expectations of those who look for a quick about-face. Also the durable goods industries will reflect additional "bad" statistics that will get a big

Will Second Half Bring the Recovery?



The Winter Book on 1961

The outlook for 1961 is cloudy at best. Probably at no time in recent years has it been more difficult to predict the business future. In this preview of the new year, and a little beyond in some areas, IRON AGE editor-in-chief Tom Campbell quotes these odds on some of the major business questions:

6 to 4 **The Index of Industrial Production will turn upward by next August.**

7 to 3 **No depression this year.**

6 to 4 **Anti-recession measures will be invoked soon.**

6 to 4 **There will be a steel strike in 1962, preceded by heavy advance buying of steel.**

play in the news. But this article discounts such poor news and looks ahead to the general pickup in the heavy and not-so-heavy industries later this year.

Rough Early Going—The drop in the gross national product and in total income will probably be as severe as it is going to be in the first and second quarters. Both items will rise in the latter part of 1961. And of course this strength will operate in 1962.

The really serious factor in the current picture is the possibility of a depression. The ingredients are there. The government debt is overextended. A whopping deficit is coming in the next fiscal year. There is a devil-may-care attitude on the part of millions, a flock of IOU's in the social security kitty, and a new Administration which may be forced into new New Deals. Also, there is an apparent long-term change—downward—in the direction of prices.

Depression Odds—Still, while it may be wishful thinking, the odds are no more than 3 out of 10 for a severe depression. So-called tools which government could use—tax cuts, spending spree, devaluation, plus a high-level fiscal manipulating—would be brought into play if signs of a depression become clear.

Statistical Figures—The drop in consumer spending and the falloff in the gross national product will not be sensational. But a big national deficit of $10 billion to $15 billion by June 30, 1962, will be quite serious. The chances are about 6 to 4 that Mr. Kennedy will be forced, by pressure of his party and his advisors, to indulge in anti-recession measures soon.

The question of new plant and equipment spending is a little clouded by the difference between interviews and projected governmental figures.

It will probably turn out that new plant and equipment spending—when all the figures are in—will be off by about 10 pct in 1961. Close to $33 billion will be spent.

Building Prospects—The outlook for construction this year is encouraging. Private non-residential building has held up; it made records last year. It will keep going at a good clip this year. Road building and government projects will be numerous enough to help swell total construction.

The big question on housing starts: "When will the upturn begin?" Most economists had looked for a spring revival. But there have been some changes in thinking in the past few months. Generally, the increase in vacancies of existing homes, the trouble in disposing of older homes, and high interest rates have all combined to create a more cautious outlook for the upswing.

Homes vs. New Cars—People often make a swing from cars to homes and from homes to cars. It may be that homes will get their inning this year. Cars had it last year. The price of new homes may be kept in the range of potential buyers. So, if the market for older homes picks up, if money becomes easier, and if interest rates go lower, the march upward in starts will begin this spring. The odds favor an upward movement in the home building cycle this year—probably before summer.

The increase in housing starts will bring along an increase in car sales, an improvement in new commercial building, and the spark needed for the deflated appliance market.

One consoling thought: Right when the bitter and sour business news hits the papers this month, and next, basic forces needed to start a recovery are already at work—and have been for some months.

There remains on the horizon the sign that another 1962 steel strike is by no means out of the picture. The odds are at least 6 to 4 that there will be one—preceded by heavy steel buying and followed by heavy buying if the strike were to last a long time.

1961 will be weak at first, with the last four or five months reflecting the strength that this country always seems to have when some have given up.

Kennedy Faces a Hornets' Nest

The U.S. Business Slump Will Offer First Challenge

President-Elect John F. Kennedy will have many problems when he moves into the White House.

The current slump in U. S. business and problems of international affairs will be primary headaches for Mr. Kennedy.
By R. W. Crosby

■ In two weeks, John F. Kennedy will walk into the White House as President of the United States. He will walk right into a hornets' nest.

A cartoonist might portray the beginning of the new President's term with a smiling Jack Kennedy surrounded by a host of angry bees, their stingers aimed in his direction.

The queen bee could be labeled "recession." Bees around her would be tabbed "unemployment, the dollar, the budget, inflation, civil rights, the farm problem." Also among the bees would be one with a fat, round face, labeled "Khrushchev," and a bearded one labeled "Castro."

The Swatters—The artist might add one more thing to his cartoon. In each hand Jack Kennedy would hold a fly swatter. These would be labeled "Cabinet" and "Congress."

The cartoon would be titled: "President of the U.S.A. Jan. 20, 1961." It would be an accurate picture of the new President's situation.

The new President enters office beset with critical domestic problems, the most immediate of which is the business slump. International problems, particularly from the Communist camp, are also critical.

Mr. Kennedy is confident he can meet the challenge the problems present. His weapons to fight the problems are his confidence, his Cabinet and the Congress.

Round I — The first challenge boils down to a fight against a continuing slump in U. S. business, with unemployment over the 5 million mark. Compounding the problem is the action which must be taken to solve it. Budgetary action is needed and it could mean deficit spending.

The new President will spend more on such things as defense and Federal aid for construction and depressed areas. His campaign pledges and actions to revitalize business will be pushed from the beginning. Here, he must rely on Congress.

A Democratic Congress with liberal tendencies will back him on much of his program. But a lot depends on how far Mr. Kennedy goes. If he keeps such things as civil rights and Federal aid to teachers out of the program for a while, he may get the backing he needs.

The President-elect, liberal as he may be, realizes now that he must not go off the deep end in dealing with Congress. His program will be quickly and decisively pushed but it won't be radical at the beginning.

Facing a Dilemma—How he will fare on the international problem, made particularly severe by the outflow of U. S. gold to foreign countries, depends more on his personal administrative actions than on Congress. He faces a dilemma. The American dollar is in trouble. And the spending Mr. Kennedy plans to stimulate the economy won't make the dollar any stronger.

The new President will take hold of the government reins himself. His personal hand will be seen in every major move. This approach will get its big test from the Communists. Khrushchev and company will try to make it tough for Mr. Kennedy.

Rely on Others—In the international field, as well as the domestic field, the new President will guide the major moves, but he will rely on the men around him to carry out his plans successfully.

READY AND WAITING: In two weeks John F. Kennedy and Lyndon B. Johnson will take over direction of the government and its problems.

Steel Puts Reins on Spending; Sales, Cash Flow Slide

Capital outlay plans for 1961 show a downward trend. Improved quality and efficiency rather than expansion is aim.

Investment in foreign facilities is due for increase.
By G. J. McManus

■ Steel spending is due to dip in 1961.

A brightening in market prospects could change things in a hurry. The mills have big programs being held up because of the sales slump. They are acutely aware of the need to modernize.

The Outlook—But at the moment, the outlook is something like this:

1. Capital outlays will drop under the $1 billion-plus estimated for 1960.
2. Spending will aim at quality, uniformity and efficiency rather than expansion.
3. Mills will concentrate on facilities used when operations drop under 70 pct of capacity.
4. Increased investment in foreign facilities is likely.

The mills started 1960 with plans to spend $1.6 billion for replacement and modernization. By October, the figure had been shaded to $1 billion. Actual outlays will probably run somewhere between the two estimates.

Downward Trend—There are no official tabulations yet for 1961 but a spot check of individual mills shows a downward trend. At the start of 1960, United States Steel Corp. had $695 million authorized for capital spending. Latest figure released by U. S. Steel was $588 million.

Jones & Laughlin Steel Corp. spent $80 million in 1960. It expects to spend $60 million in 1961. Allegheny Ludlum Steel Corp. is cutting back from $20 million in 1960 to $6 million this year. Republic Steel Corp. is holding the 1960 level of $120 million. Armco Steel Corp. plans a boost from $60 million in 1960 to $100 million this year. However, the general outlook is for spending slashes.

Forcing cutbacks is the slide in sales and cash flow. From 1946 through 1959, the steel industry spent $12.3 billion for replacement and modernization. Of this amount, $7 billion came from depreciation and amortization. Peak for these items was $766 million in 1957.

Depreciation Down — With fast tax write-offs now going or gone, depreciation (3rd quarter) is running at the rate of $660 million a year. This is down by about $100 million from 1957, although the steel industry's investment has grown by $2 billion in the past three years.

Earnings show similar shrinkage. Steelmakers plowed $5 billion back into the business over the 1946-59 period. In the third quarter of this year, they earned only $132 million and had to take $27 million out of the business.

The industry earned over $1.1 billion in 1957. In the third quarter, before the recent wage increase, earnings were at an annual rate of $530 million.

In the matter of borrowing power, there is sharp variation from company to company. The industry as a whole owes more than $2 billion in long term obligations. Taking 10 of the biggest producers, two have debts that are more than 30 pct of total capitalization. Five are over 20 pct. U. S. Steel, with 12.5 pct and Bethlehem Steel, with 8.3 pct, are among those in a strong borrowing position.

Sales and Cash Flow Rule—For most of the mills, spending will have to be geared to sales and cash flow. Allegheny Ludlum is in the middle of a $40 million program. The mill has projects it wants to start. But until sales and earning improve, 1961 spending will be held to the $6 million generated by depreciation.

The sales outlook will also determine the nature of capital programs. The steel industry has averaged around 65 pct of capacity over the past three years. The mills hope to hit about 70 pct in 1961. For some products, producers feel they have ample capacity for the next five years.

With this prospect, no one is in a mood to spend for expansion. The need for modernization and replacement is recognized. However, it is not always easy to modernize without expanding. One producer recently rebuilt a hot strip mill. Cost was up near $50 million.

The project boosted hot mill capacity from about 130,000 tons to over 200,000 tons. With today's market conditions, the mill is producing only 100,000 tons.

Volume Needed—This is one of the problems for steel. You frequently cannot modernize in small increments. And it is difficult to pay off massive investments unless there is the increased volume.

Several solutions to this difficulty are being tried. The National Supply division of Armco Steel Corp. faced a need to modernize its continuousweld mill near Pittsburgh. Although the present mill dates back only about 10 years, it is slow by current standards.

Modern pipe mills go up close to 2000 fpm; National Supply's unit operates at 500 fpm. This speed gap made modernization necessary.

As a way out, National Supply is going to a combination con-

tinuousweld and electricweld mill. Stretch-reducing equipment of the new facility will also be used for seamless pipe. By building a flexible unit, National Supply figures it can get high speed efficiency and still not have expensive equipment sitting idle.

Partial Modernization—Another approach to the same difficulty employs an intermediate, or partial, type of modernization. Klockner in Bremen, Germany, is installing a new hot strip. The mill will be entirely modern but instead of a continuous roughing train, will have a reversing rougher. Space is being provided for the addition of individual roughing stands when demand warrants.

Cost pressure will probably be the biggest factor in 1961 capital pressure. Close behind will be market pressure for better quality and new products. At least seven bright annealing lines will be installed by stainless strip producers in 1961.

These will cost over $1 million each. There is no assurance the new lines will reduce production costs; many feel they will increase costs; and no premium is being charged for bright annealing.

However, auto producers want bright annealed quality. This customer preference brought action by almost the entire stainless industry in a matter of months.

Quality Sells—In a less striking manner, the same kind of improvement is being made throughout the steel industry. Elaborate and expensive gage controls are being applied to hot strip mills. In most cases the mills can produce within commercial tolerances without added control. But the big steel users are rating suppliers on product performance with minute care.

Thin tinplate reflects market pressure of a different kind. This new product could put tin mills in better position to beat back aluminum competition in the can market. With many questions unanswered, the mills have been moving cautiously in the matter of new facilities for thin material.

But the program could start moving with a rush. Six-stand tandem cold mills are being installed by U. S. Steel and by Youngstown Sheet & Tube Co. Granite City Steel Co. is putting in a big, high-speed Sendzimir mill. If one producer comes up with a mass production operation for thin tinplate, others will have to follow.

In the matter of basic steelmaking facilities, the emphasis is on improving existing units — particularly the low cost equipment that is used when operations go below 70 pct. The current program for tonnage oxygen includes 18 major plants for steel.

Oxygen Plants—In part these are related to basic oxygen steelmaking. National Steel Corp. and J&L are going ahead with big new installations. However, one big basic oxygen plant has been shelved and final commitments are being delayed by many others.

On the other hand there is no holdup on the tonnage oxygen program. There is still debate as to the economics of openhearth oxygen; one mill says it is just breaking even in its roof lance systems. However, the same mill says oxygen has lowered costs by making it possible to get more steel out of low-cost openhearths.

Increased foreign investment by American mills seems certain for 1961. The only question is what form this will take. Specialty steel operations for Europe have been announced by Allegheny Ludlum Steel Corp. and Crucible Steel Co. of America. Crucible is opening a warehouse in Australia. India is considered a good bet for American electric furnace operations.

Sources of Steel's Capital Dollars

Quarterly Totals in Millions of Dollars

	4th 1957	1st 1958	2nd 1958	3rd 1958	4th 1958	1st 1959	2nd 1959	3rd 1959	4th 1959	1st 1960	2nd 1960	3rd 1960
Sales	4584	3800	3979	3961	4470	5236	6791	2875	4228	5702	4916	4122
Net Profit After taxes	267	159	198	199	321	374	552	— 89	204	400	263	132
Net Profit Retained in Business	95	11	52	51	160	219	397	—248	35	235	103	— 27
Depreciation (Fast tax)	66	42	44	38	38							
Depreciation (Normal)	143	148	153	164	171							
Total Depreciation	209	190	197	202	209	205	240	155	199	229	216	189

Source: FTC Quarterly Reports of Primary Iron & Steel

R&D Outlays Hit New Peak

More Than $13 Billion Will Be Spent on R&D in 1961

R&D bucks trend of tightened purse strings as industry scrambles to put new products on the market.

The interval between a research idea and a paying product is now 5 years.
By K. W. Bennett

■ Despite a poor business climate, research and development outlays by business were the highest percentage ground-gainer in 1960. And, they'll increase again in 1961.

The U. S. R&D outlays hit $12 billion in 1960—exactly what forecasters had predicted. These same forecasters look for expenditures of $13 billion in 1961.

There was an apparent slowdown in R&D spending during the second half of 1960. One major research facility reports that backlogs were down 25 pct. Probably responsible for this cutback was reduced government spending following earlier record outlays.

The Big Sources — Of 1960's total expenditures for R&D, about $2 billion came from industry. The Dept. of Defense, Atomic Energy Commission and National Aeronautics and Space Administration put $10 billion into Federal research contracts.

Now, with a new Administration taking hold, there appears a trend of upward spending for research. Whereas the Dept. of Defense was allotted $4.45 billion in 1960, it will have $4.99 billion this year for R&D.

Prediction—Some research men are looking for a 10 pct increase in 1961. Dr. Richard Humphries, vice president for technical developments, Armour Research Foundation, for example, reports that the foundation is budgeting for a 10 pct gain in 1961. He expects record levels in the industrial research area.

Dr. Alan Waterman, Director of National Science Foundation told The IRON AGE: "Our studies indicate that funds for research and development in the economy as a whole will total more than $13 billion in 1960-61. The industry sector of the economy is expected to spend more than $10 billion of this total, and the federal government will be the source of more than half of this amount. The estimated total represents an increase of about $1 billion over the 1959-60 period."

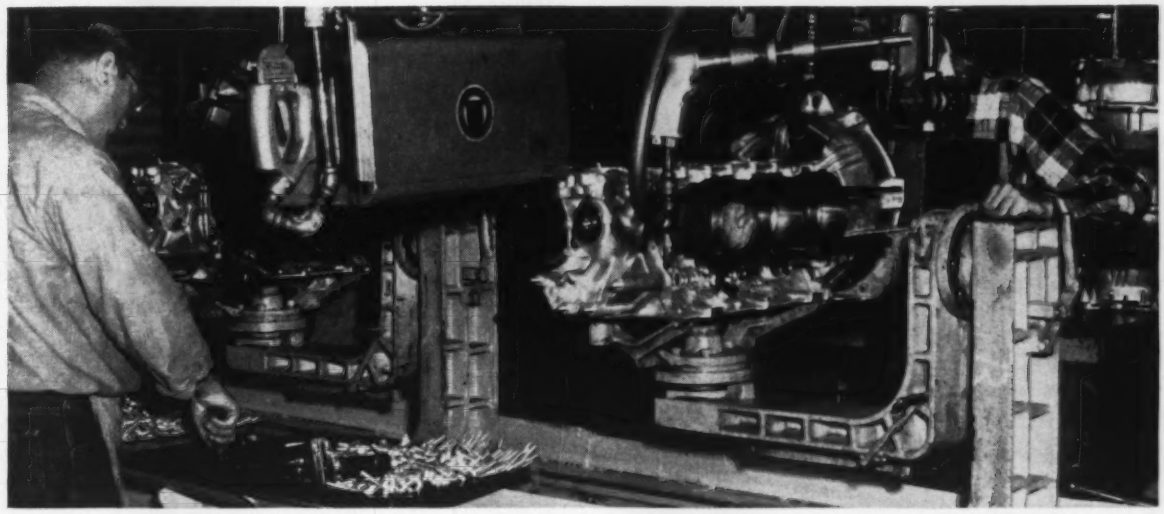
Fast Pay-Off—Industry has been pushing for a faster payoff for R&D efforts. A number of observers claim that the interval between a bright new product idea and an item for sale is five years. Just last year, most claimed a seven-year interval.

Credit for this stepped-up pace is generally given to the fact that more money is spent on R&D. Also, industry is doing a better job of liaison between research engineers, production and sales people. Too, computers have facilitated swifter flow of ideas into products.

Materials — What's being researched? A top research man comments, "The emphasis is still on materials. Chemistry, physics, electronics and metallurgy are the areas of greatest attention."

Plastics are under development for electronic control systems that operate in a 1000°F environment. New chemicals permit water to remain liquid at —60°F. Steel tanks that will withstand drop hammer tests when filled with liquid hydrogen (—300°F) are an accomplished fact.

THE SEARCH: Miniaturization has given way to research into microminiaturization of components for missile projects at Motorola, Inc.



ALUMINUM BUILD-UP: Aluminum engines assembled for Chevrolet's Corvair signify the build-up of new and expanding markets for aluminum. Gains have also been made in metal can and other new markets.

New Markets Help Aluminum

Penetration into new market areas was the big accomplishment of the aluminum industry in 1960.

Profit outlook for this year is clouded, with most forecasts hinging on general business.
By F. J. Starin

■ It takes more than one disappointing year to cancel the aluminum industry's traditional optimism. But 1960 has tempered appraisal of the future.

Overall, top aluminum executives now tie the fortunes of their industry in 1961 closely with the general business economy.

Spokesmen Report—"Any significant upturn in business activity, particularly in the durable goods sector, should be accompanied by a sharp rise in the aluminum industry," says Richard S. Reynolds, Jr., president, Reynolds Metals Co.

D. A. Rhoades, president of Kaiser Aluminum & Chemical Co. agrees. "The outlook for aluminum in 1961 must be said to depend upon the outlook for American business in general," he says.

Within the industry however, there are some differing viewpoints, along departmental lines. Marketing people, in general, show professional optimism about 1961. Financial people are somewhat concerned, as usual. Operating people are somewhere in between.

Market Gains—In terms of market penetration, 1960 was a good year for aluminum. Automotive use, keynoted by six aluminum engines, increased. Canmakers leaned more toward aluminum, lead by citrus concentrators. Reynolds predicts that in the coming canning season, virtually all frozen citrus concentrates will be packaged in aluminum cans.

Despite the drop in housing starts, sales of aluminum siding actually improved last year.

Mr. Reynolds looks for "increased use of aluminum by the railway industry." Lawrence Litchfield, president of Aluminum Co. of America points out that "electrical industry consumption of aluminum in transmission towers alone has jumped 300 pct since 1958." And he expects this to continue.

And all producers, including Aluminium Ltd., Canadian producer, are looking for oil, gas and water pipe sales to zoom in 1961.

Profits Dip—But the plain fact is that profit margins are failing to keep pace with the fast-growing markets.

Alcoa president Litchfield blames prevailing low prices. Mr. Reynolds points the finger at "general business conditions" and higher labor costs.

Kaiser president Rhoades says, "The aluminum industry's own market development efforts have also affected the current earnings picture. Prices for certain mill products designed for the mass production industries are necessarily established at levels which will make these products generally competitive with other available materials."

Perhaps more important, Mr. Rhoades believes these factors that are squeezing profits are temporary. He believes that "satisfactory volume" in these key products will boost profits to "adequate."

Farm Equipment Sales May Rise

Producers Say Inventories Are Down, Farmer Profit Up

Manufacturers of farm equipment are generally optimistic about the sales prospects for 1961.

They say lower inventories and higher farm incomes should spell a better year than 1960.
By K. W. Bennett

■ The first gains in the 1961 farm equipment outlook are trickling in. Recently, a major producer doubled his tractor schedules. Forecasts of improved business are snowballing. Now, a producer will begin buying raw materials against a 15 pct advance in production schedules.

For the record: J. I. Case Co. president W. J. Grede comments, "We see an increase in 1961 sales. We have some new products. Farm income is expected to hold at '60 levels. Dealer inventories are down. It adds up to increased manufacturer sales."

In quick succession: President W. A. Hewitt, Deere & Co., indicated that 1961 will see a 5 to 6 pct advance in farm equipment sales for the industry, and seems to feel that his company will even better this figure.

More Domestic Sales — Minneapolis-Moline Co is shooting for a 10 to 12 pct increase in domestic sales; an even stronger gain in export sales—and will do a bigger contract manufacturing business this year.

Oliver Corp. president S. W. White Jr. is expecting a 5 to 10 pct retail sales gain. Both International Harvester Co. and Allis-Chalmers Manufacturing Co. have said they'll see more business in 1961.

The $1.5 billion farm equipment industry is traditionally conservative in its forecasts. Only 30 days ago, its predictions ranged from a top gain for 1961 of only 5 pct to as much as 10 pct under. One observer still expects a 1961 sales decline of 15 pct. But this year, farm equipment is one of the first industry groups to go on record as seeing a stronger year ahead.

The Reasons—Why the sudden change? The industry had a poor 1960, and certainly isn't pushing its own vendors for any rush of raw materials or components. Some of the reasons for the advancing forecasts:

Farm equipment makers are moving into 1961 with an enviable inventory position. Manufacturers' shipments of wheeled tractors dropped from 229,700 units in 1959 to 200,000 units in 1960. Farmers' purchases didn't drop that much. Dealer inventories of tractors scaled down by 20 pct.

Merritt D. Hill, vice president and general manager of Ford Motor Co.'s Tractor and Implement Div., comments that "excessive inventories appear to have been worked off, and production in line with sales can be resumed."

But he adds that 1961 "will be intensely competitive in the areas of price, quality and service."

Combines, another important dollar item, are in worse inventory shape. But this is a fall sales item, and there's still time for correction.

High Farm Income—At the same time, farm income moved to $38.1 billion in 1960. That's a shade short of the record $38.2 billion of 1958 and well over what had been expected. A number of crops requiring considerable tillage equipment actually hit record levels this year. Dept. of Agriculture forecasts call for at least an equal gross farm income in 1961.

Equipment makers believe a farmer buys on his gross income.

SALES WILL CLIMB: Producers of farm machinery and equipment look for additional sales in 1961. The industry says low inventories and more farm profits will mean a greater demand for tractors such as this one manufactured by John Deere Corp.

If he didn't buy in 1960, he put money away. The theory has proven out in at least one recent recession.

At the same time, builders will hit the market with a flood of new designs, new models, and new products. Allis-Chalmers is expanding into lighter tracklaying tractors. John Deere is already hitting the market with a completely new tractor line; has beefed its combines so one of them is the biggest built.

Cleaned Inventories—Finally, to improve its cash position, the farm equipment industry cleaned its own inventories thoroughly this year. One company already reports holes in raw materials inventories over the past 30 days, yet will not boost raw material inventories above three-quarters of normal. Another, with rising product schedules, is in an inventory reduction program that will continue through the first quarter.

A third comments, "With the tractor inventory we've got out at the dealerships, if we get any more sales increases, we'll be scrabbling to fill orders."

New models, plus the 1960 inventory reduction of finished goods, have at least four important manufacturers filling pipelines and have already put one 7 pct ahead of last year's factory shipments.

No Bonanza—The farm equipment gain doesn't necessarily spell a bonanza for suppliers. A 5 pct rise in 1961 tractor sales, or 210,000 units, still leaves the industry under 1959 buying levels. A close-fisted buying policy means the industry will buy only for immediate use, and is ready to cut off orders at the first sign of trouble.

While the industry expects to step up its purchasing levels in the first quarter it is doing so at a slow pace—far less than its own sales forecasts would indicate. Since it's already well into its winter manufacturing season, it is buying against a production season that begins to fade in late February. The next seasonal buying wave isn't due until May and June, when production of fall implements begins.

Can Automakers Hold Sales Gains of '60?

The auto industry had a good year in 1960. It is hopeful that 1961 will be almost as good.

But there are several negative factors: High inventories, high unemployment, unsettled business conditions, and contracts expire.

By A. E. Fleming

■ There's seldom been more difference of opinion over an automotive year than there is for the coming one. Pessimism and cautious optimism are intermixed. But conservatives seem to be in the majority.

About the most being said by experts in the industry is that 1961 will be about the same kind of a year as 1960. Others foresee a drop of several hundred thousand cars in sales and production.

Exports Increased — There's no doubt 1960 was a good year. American automakers totaled 6,740,000 factory sales and 1,210,000 trucks compared to 5,591,000 and 1,137,000 in 1959. Cars showed a combined wholesale value of $12 billion, trucks $2.5 billion against $10.5 billion and $2.3 billion in 1959.

Reversing a trend, exports of U. S. cars jumped to 145,000 from 116,500 and trucks moved up to 215,000 from 195,000, a total gain of nearly 50,000 over 1959.

Auto Indicators—Other rule-of thumb indicators show further proof of 1960's excellence: Gasoline consumption jumped from 56.3 to 58 billion gallons; vehicle miles of travel climbed from 698 to 720 billion; car owning families moved up to 39.5 million from 38.2 million; registrations at the end of the year numbered 61.5 million cars and 12 million trucks, up from 59.5 million cars and 11.7 million trucks.

Big Three auto company presidents predict new car sales in 1961 will be about the same as 1960. L. L. Colbert of Chrysler Corp. forecasts 6.5 million sales in the next 12 months; Henry Ford II of Ford Motor Co. tabs them at 6.6 million; F. G. Donner, who in November forecast sales of 7 million cars "if consumer incomes continue to rise and consumer confidence is sustained," tempered this forecast as the year ended by saying "1960 sales could be matched or even exceeded in 1961."

Less Optimistic—Sources outside the auto industry are less optimistic about 1961's possibilities. The University of Michigan, in its annual economic forecast, pegged 1961 auto sales at 6.2 million.

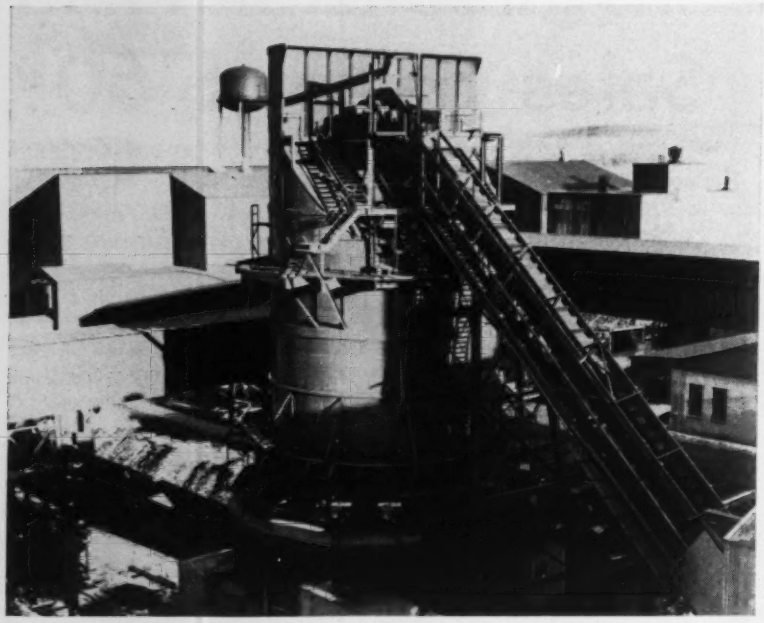
The Dept. of Commerce says sales will total about 6.5 million cars, including 400,000 imports. But predicts a drop in production to 5.8 million units in 1961.

Commerce bases its forecast on an expected low first half, an attempt to cut back high dealer inventories of over 1 million cars as the year starts, on unemployment, and unsettled business.

Hit or Miss?—In addition to lack of unanimity over 1961's sales and production prospects, opinions vary over the possibility of a strike. Big Three contracts with the UAW are up for renewal in the summer.

Union demands will be drawn up in April. Some believe the auto companies will take a firm stand, following the lead of General Electric Co. in 1960 negotiations with the IUE. Others disagree. In all probability the general economic picture in the first half of the year will determine the stand.

Tall Tower Cools Hot Sinter



NEW AND COOL: Some 3800 tons of sinter per day are cooled by blasts of air as the product works down through a vertical shaft of this new sinter cooler. Unlike conventional rotating coolers, this one is stationary. First of its type, it was built by Dravo Corp. for the New York Ore Div. of Jones & Laughlin Steel Corp., Star Lake, N. Y.

World Press Market Stays Strong

Story behind announcement by Clearing Div, U. S. Industries, Inc., of a $435,000 press going to Japan: The press is first of a lot of four presses, aimed at the same customer there. The big U. S. press manufacturer builds presses in Australia, has a two year backlog in its plant there.

And despite the cries of alarm over the foreign auto industry sales drops, Clearing and other press builders confirm that the foreign order situation for presses is not only strong, but still rising. In Great Britain, Clearing is reported to have a two year backlog, and the backlog is still gaining. Italy is a "hot" market, in the words of one Clearing official.

A lesson too, in checking unlikely markets and hitting paydirt, is the fact that buyers from India are eager to get U. S. press equipment. They are getting funds through the Export-Import Bank and the Development Loan Fund. Clearing is building presses through Italian licensees, shipping them into South America, and finds this market strong. A new factor, the Latin American Bank, will be a further aid in this area.

Said Clearing President John R. Bartizal, "It's reasonable to say that 1961 will be our biggest sales year. We wish we could always have our business at the levels we have right now. Particularly, in the field of international operations."

Europe's Steelmakers Push Expansion Plans

West European steelmakers are pushing capital spending programs at record rates. New investment projects reported to the High Authority of the six-nation European Coal and Steel Community during the first half of 1960 indicated expenditures of nearly $1.1 billion.

An example of why and where Europeans are spending their money: August Thyssen-Huette A. G., Duisburg-Hamborn, West Germany, has started a program to lift its annual crude steel capacity to 4.6 million short tons by 1963. ATH is already West Germany's leading steelmaker.

Projects planned or in progress: A ninth blast furnace; an L-D oxygen steel plant with two 165-ton-capacity converters; a semi-continuous hot-strip mill; and new slab rolling facilities.

The West German steel industry alone spent about $239 million in 1958. This fell to $207 million in 1959, but shot up to $270 million in 1960. Capital expenditures are expected to reach $250 million or more this year, a level the industry plans to maintain for at least the next several years.

Canadian Tariffs May Hit U. S. Exports

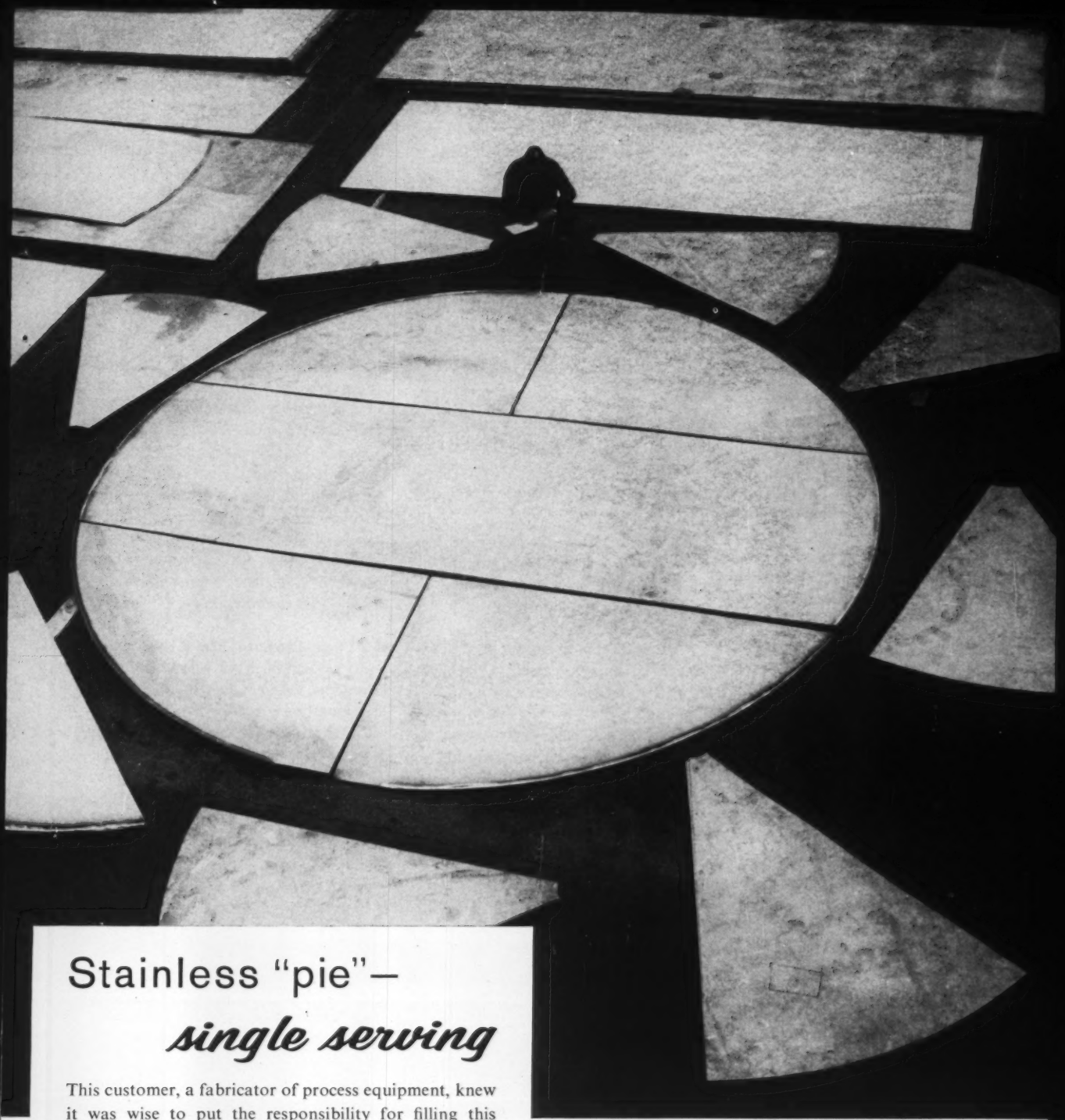
A change in Canadian tariff laws could mean an increase in duties on some $200 million worth of U. S. machinery exported to Canada. The ruling might also affect tariffs on autos, aircraft, and structural steel.

Under the new tariff ruling, about one-third of the $600 million worth of U. S. machinery exported to Canada will be made vulnerable to a 22.5 pct tariff rate. Much of this machinery now carries only a 7.5 pct duty. Metalworking machinery accounts for about $40 million of the total.

The 7.5 pct duty is set up for items not made in Canada. Imported items which are also made in Canada have the 22.5 pct rate.

Under the new ruling, the 22.5 pct rate will be applied to machinery which Canadian firms have the capacity to produce even if not now making them. The high rate will also be applied if Canadians produce machinery of approximately the same class.

Since Canadian tariff laws provide certain rates for specific types of machinery, such as agricultural and mining machinery, the new ruling will apply to machinery "not otherwise provided for" in tariff laws.



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INDUSTRIAL BRIEFS

Into Indian Country—A privately-financed helium extraction plant will be built in the U. S. to supply the commercial market in the Pinta Field, Apache County, Arizona. Air Products, Inc., of Allentown, Pa., is designing and engineering the plant for Kerr-McGee Oil Industries, Oklahoma City. Engineering work is now underway, and the plant will be completed within a year.

Moving Day—Temescal Metallurgical Corp. moved its offices and plant from Richmond, Calif., to a new location at 2850 Seventh St. in Berkeley. A new electron beam furnace is being built at the Berkeley site and is expected to be in operation by mid-March. When completed, it will stand about three stories high and will weigh about 25 tons.

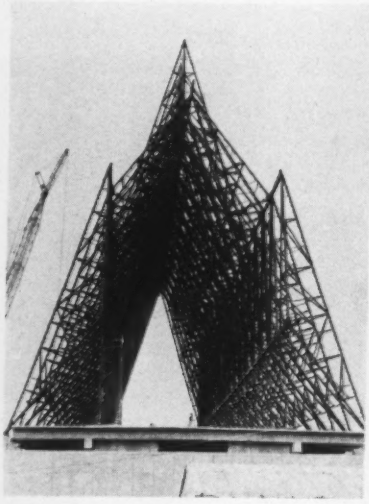
Foundryman's Envoy — A. J. Kiesler, a metallurgist at the General Electric Research Laboratory, has been chosen by the American Foundryman's Society to represent the U. S. at the 28th International Foundry Congress in Vienna. Metallurgists from about 28 nations will attend the Congress. It will be held from June 18-24. One paper will be presented by each nation.

Missile Millions—Hughes Aircraft Co. received a Navy contract for $6.6 million for continued production of inertial guidance systems for the Polaris missile. The contract brings the total of Polaris work awarded Hughes to more than $21 million. It will extend the current rate of production of Polaris guidance systems at Hughes El Segundo, Calif., plant through 1961.

Titanium Plans—A license to produce a new titanium-palladium alloy with improved corrosion resistance has been extended by Union Carbide Metals Co. Div. of Union Carbide Corp., to Titanium Metals Corp. of America. TMCA will alloy titanium with 0.15 pct palladium. Union Carbide developed the alloy in its Metals Research Laboratories.

Union Spring Reorganized—A group of Pittsburgh business men, headed by B. C. Sabel and Clarence Abitz, has purchased the controlling interest in Union Spring & Mfg. Co., New Kensington, Pa. The 58-year old manufacturer of railroad and industrial springs, steel castings and pressed steel products is planning modernization of plant and equipment, and increased efforts in industrial, railroad and space-age applications for their products.

Maintenance Organization — A new society has been formed known as the International Maintenance Institute. The non-profit organization is chartered under the laws of the state of Connecticut. Newly-elected first president of the Institute is G. J. Martin, authority on maintenance problems and solutions, writer, lecturer and consultant to U. S. industry and defense and other government departments.



PATTERNS FOR WORSHIP: This steelwork is for the new Cadet Chapel at the Air Force Academy, near Colorado Springs, Colo. Five slender lengths of U. S. Steel's "T-1" steel hold the steel patterns together.

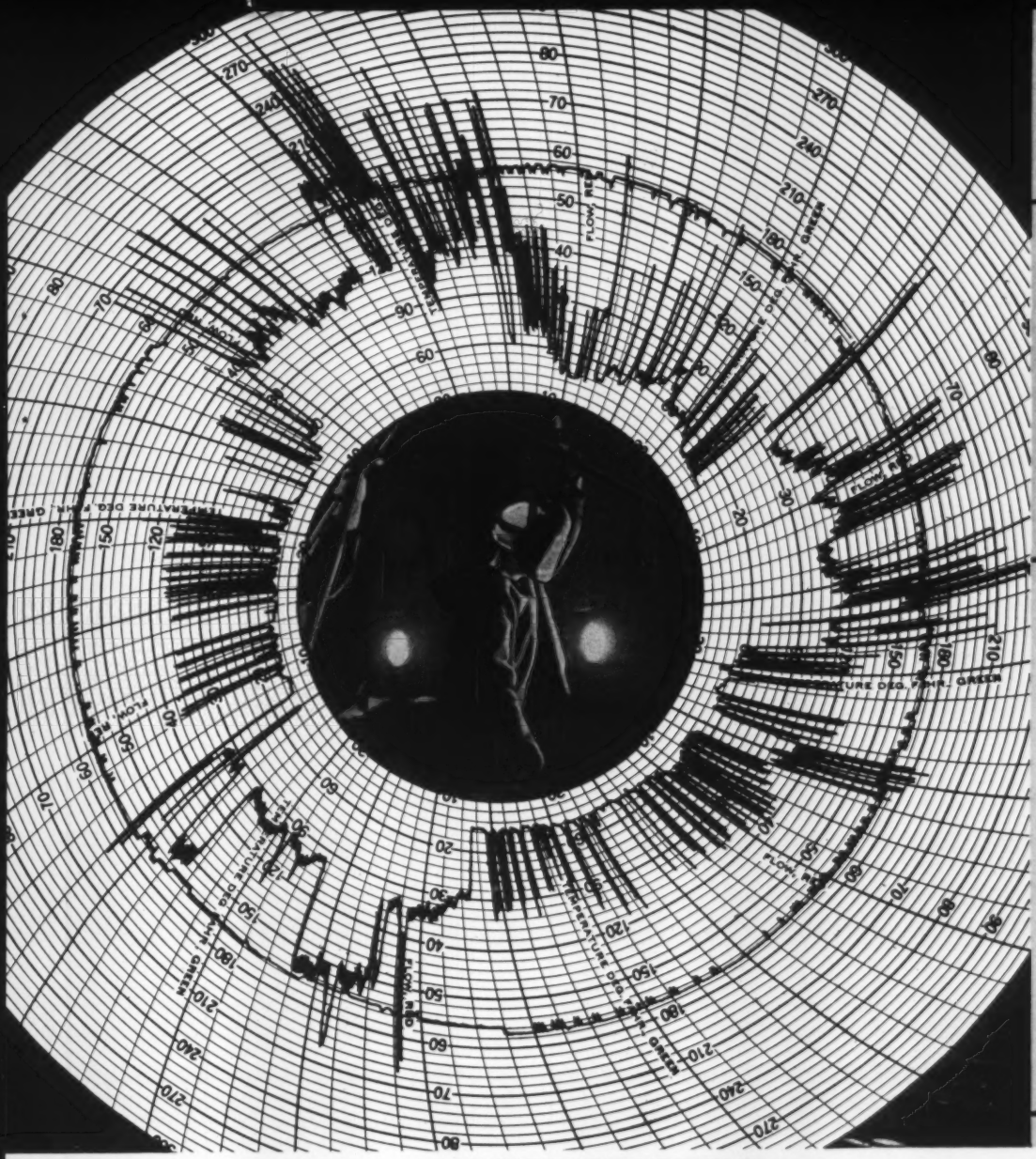
Three for One—A new electronics and applied science division has been formed by The Susquehanna Corp., Chicago. It will be known as Susquehanna Sciences, Inc., headquartered in Pasadena, Calif. It includes three companies acquired by Susquehanna during the past year: Computer Engineering Associates, of Pasadena, Birdsell Products, and Thor Electronics, Palo Alto, Calif.

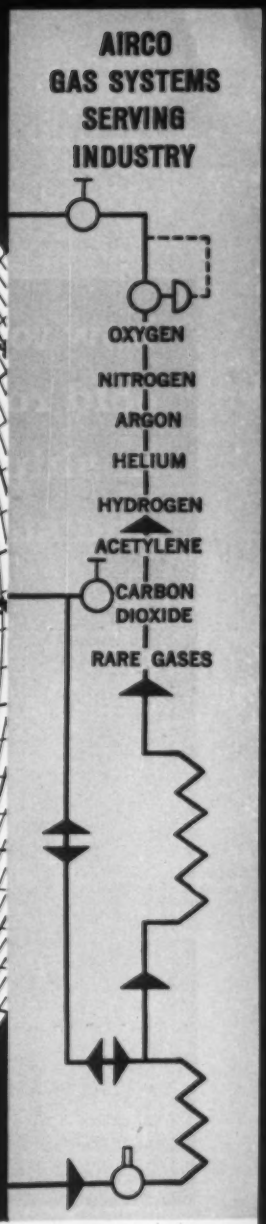
Westinghouse's Weaver Honored —C. H. Weaver, vice president, atomic power, Westinghouse Electric Corp., has been elected president, Atomic Industrial Forum, Inc. The Forum is a non-profit association made up of business and professional organizations, labor groups, educational institutions, and governmental agencies active in furthering atomic energy development and commercial applications.

High Pressure Move — Convair Div., General Dynamics Corp., is moving its Dynapak facility from Pomona to San Diego. The facility manufactures high-energy rate metal forming machines and a line of advanced mechanical test equipment. The new address is 2930 W. Harbor Drive. The move is expected to be completed next month.

GE Computer Plans — General Electric Co. plans to establish a $1.5 million Advanced Computer Development and Research Laboratory at Sunnyvale, Calif. Construction of the 49,000 sq ft lab is expected to start in the spring. Occupancy by GE lab personnel is scheduled for December, 1961. The lab will be located at the International Science Foundation in Sunnyvale.

Overseas Move — A wholly-owned subsidiary has been formed in Cologne, Western Germany to stock and distribute plastics of The Polymer Corp., Reading, Pa. The new organization, Polypenco G.m.b.H., will supply the Western German market with nylon, Teflon and other semi-finished shapes of industrial plastics.





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Will Credit Vary Much in '61?

Interest rates probably won't change drastically during the next twelve months.

Despite forces operating to ease credit, others will act to hold rates up.

■ Don't look for any great changes in interest rates in '61 unless there's a runaway boom or a prolonged recession. Since both these prospects are unlikely, credit conditions probably won't alter radically in the next twelve months.

Many forces are operating in favor of easier money. But there are equally powerful forces at work holding off any wide moves away from present lending rates.

Previous Pattern—What happens overseas in '61 will be as important as what happens in the U. S. in regulating credit terms. It's probably even more important.

A review of credit conditions during 1960 indicates why. When the year started, there was concern that tight money might stifle the boom. But business activity never lived up to early hopes. This brought demands for easier credit to stimulate business.

FRB Actions—The Federal Reserve Board acted by twice cutting the discount rate it charges FRB member banks. These moves dropped the rate from 4 pct to 3 pct by August. Even so, the prime lending rate (the amount commercial banks charge their prime customers) reacted slowly, only declining ½ pct. Mortgage rates showed even a slower downward trend.

What's more, the moves to ease credit didn't bring a large boost in bank lending. Poor business conditions, of course, were a major factor. In addition, some banks were cautious about expanding their ratios of loans to deposits.

Overseas Drain—On top of this, the reductions in U. S. interest rates drove short-term capital funds overseas in search of better interest rates. It's estimated by the Chase Manhattan Bank that about a billion dollars worth of this type of money may have left the country in the third quarter alone. Foreign sources also converted their dollars into gold, contributing to the "drain" on U. S. gold stocks.

In all, U. S. gold stocks declined over $1.5 billion in '60, with most of the decline coming in the second half of the year. Renewed efforts to lower short-term interest rates further could speed up this trend.

What to Expect—Against this background, what can you expect in the money market in '61?

The overall prospect is this: Efforts will be made to ease long-term interest rates to encourage borrowing. On the other hand, efforts will probably be made to keep short-term rates firm. This is necessary to prevent the continued flow of "hot money" abroad, seeking more favorable interest rates.

Foreign Moves Important

■ How successful will these moves be? Some government economists are not sure if some rates can be changed without affecting others. They also see the international situation having a prime influence on what can be done.

Recently, for example, some European central banks have reduced discount rates. This will lessen the incentive for shifting funds to these countries.

Factors Here And Abroad—Severe economic slump overseas would also drive down interest rates there. Barring this, foreign pressures will act to keep U. S. interest rates from falling very far.

Other influences at home could operate, however, to push down borrowing charges. These include: A continued business slump and the new Administration's desire to achieve lower interest rates.

Less Latitude—As a result, in '61 (and beyond) interest rates may fluctuate in a narrower range.

"Never in recent decades has our government been faced with such a narrow latitude in its economic policy," says Paul W. McCracken, University of Michigan professor, former member of the President's Council of Economic Advisers.

"The time may be past," says L. Merle Hostetler, vice president, Federal Reserve Bank of Cleveland, "when it is possible for a major country to bring about any given low level of interest rates, not in accord with contemporary economic forces, without erecting a complicated apparatus of direct controls."

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Zinc Stages Auto Comeback

Growing use of galvanized steel by automakers to combat corrosion is aiding zinc producers.

So is the return to chrome-plated zinc diecastings for many decorative parts on 1961 cars. By A. E. Fleming

■ Suppliers of basic materials to the auto industry have viewed compact cars with keen interest in the past year. The smaller cars use less of practically all materials. Zinc suppliers are no exception.

How is this metal faring in today's complex car market? The biggest new potential for zinc appears to be the auto industry's use of zinc-coated sheet steel on compact cars. The purpose is to fight corrosion, especially on critical under parts on unitized bodies.

Going Galvanized — The sharp increase in the use of continuously galvanized sheet by auto makers is seen as a continuing trend by the zinc industry.

Recent rise of the material is indicated by the following figures on shipments of short tons of galvanized sheet steel to the U. S. auto industry: 1955, 87,408; 1956, 91,-057; 1957, 124,196; 1958, 133,-215; 1959, 158,280; 1960, 212,-300 (estimate).

The 1961 cars using substantial amounts of galvanized steel include all cars in the Ford line, the Buick Special, Chevrolet Corvair, Oldsmobile F-85 and Pontiac Tempest. Indications are car makers will use more galvanized sheet in 1962 models.

Chrome-Plated — Another zinc booster: Producers point to signs of a return to chrome-plated zinc diecastings in high-corrosion areas of volume production models.

When asked about corrosion of chrome plate on hundreds of auto exterior zinc die castings, American Zinc Institute's executive vice president, J. L. Kimberly, said a number of improved ways to apply chrome plate (copper-nickel-chromium) to zinc die castings have recently been adopted by most car makers. The new chrome plates are said to test out three to five times better than previous service life.

More Diecastings—The AZI told The IRON AGE that automotive use of zinc diecastings for full size models is up more than 15 pct over 1960 cars. Important increases are prominent in Buick, Chevrolet, Oldsmobile, Cadillac, Imperial, Chrysler, Thunderbird and Lincoln. Studebaker remains about the same as 1960. American Motors is down somewhat.

General Motors Corp.'s cars are using zinc diecastings for instrument housing components almost exclusively. Buick, Oldsmobile, Pontiac and Lincoln have diecast zinc grilles, while Mercury uses zinc heavily.

Other Parts—Diecast zinc grille components for Chrysler and Imperial have been designed as larger units in 1961 models. Another big zinc part is the quarter vent frame used in hardtops and convertibles.

Other parts that are still zinc diecastings are door handles, window crank parts, rear view mirrors and ornaments.

CORROSION PROTECTION: Gray areas indicate some of the use being made of galvanized steel for greater rust protection in Ford Motor Co.'s 1961 Lincoln. All Ford cars make extensive use of it.

MARATHON FORGED STEEL ROLLS

MARATHON

SPECIALTY STEELS, INCORPORATED

A Division of Deutsche Edelstahlwerke A. G., Krefeld, West Germany KEW 375 Park Avenue, New York 22, N. Y.

Farwest Retains 1960 Optimism

This Year Looks Good for Aluminum, Aircraft Industries

Industry on the West Coast is retaining the cautious optimism that prevailed throughout 1960.

Farwest aluminum producers look for continued expansion; aerospace projects should keep pace with 1960's rate.

By R. R. Kay

■ Cautious optimism is the order of the day in the Farwest.

The new census figures reveal that the region is one of the nation's fastest growing areas for metal working's goods and services.

So what's ahead for the Farwest in 1961?

Here's a capsule rundown:

You can figure that the region will again chew up 15 pct of the national aluminum market.

Primary aluminum producers in the Pacific Northwest expect to turn out about 525,000 tons this year. That's the same as in 1960. Some 15,000 tons of new capacity will come in.

The Same Rate—Last year, the aluminum industry there operated at 75 pct. And it expects to run at the same rate this year. Aluminum producers are optimistic about getting into the can market.

The 13 Farwestern states will consume 6.5 million tons of steel. Last year, buyers took about the same tonnage and used it up. The industry should operate at 65 pct of capacity, on a rising note.

More Steel Usage—Construction, the mainstay of the industry in the Farwest, will use more steel this year than last. Huge projects are in the works. Home building, though, will be down. This will hurt contractors' products — water heaters, furnaces, and coolers for example.

To sum it up, look for a slow decline in steel output during the first half. But the fourth quarter should bring a healthy upturn.

The space age moves rapidly ahead. And President-elect Kennedy is almost certain to keep defense spending on the upgrade.

The aerospace industry is still No. 1 on the West Coast. It has a $6.5 billion backlog. Here's how it's made up: Missiles, $3 billion; military aircraft, $2 billion; and commercial aircraft, $1.5 billion.

Custom-Made Missiles—Missiles during the next three or four years will still be custom-made. That's unless, of course, there's a national emergency.

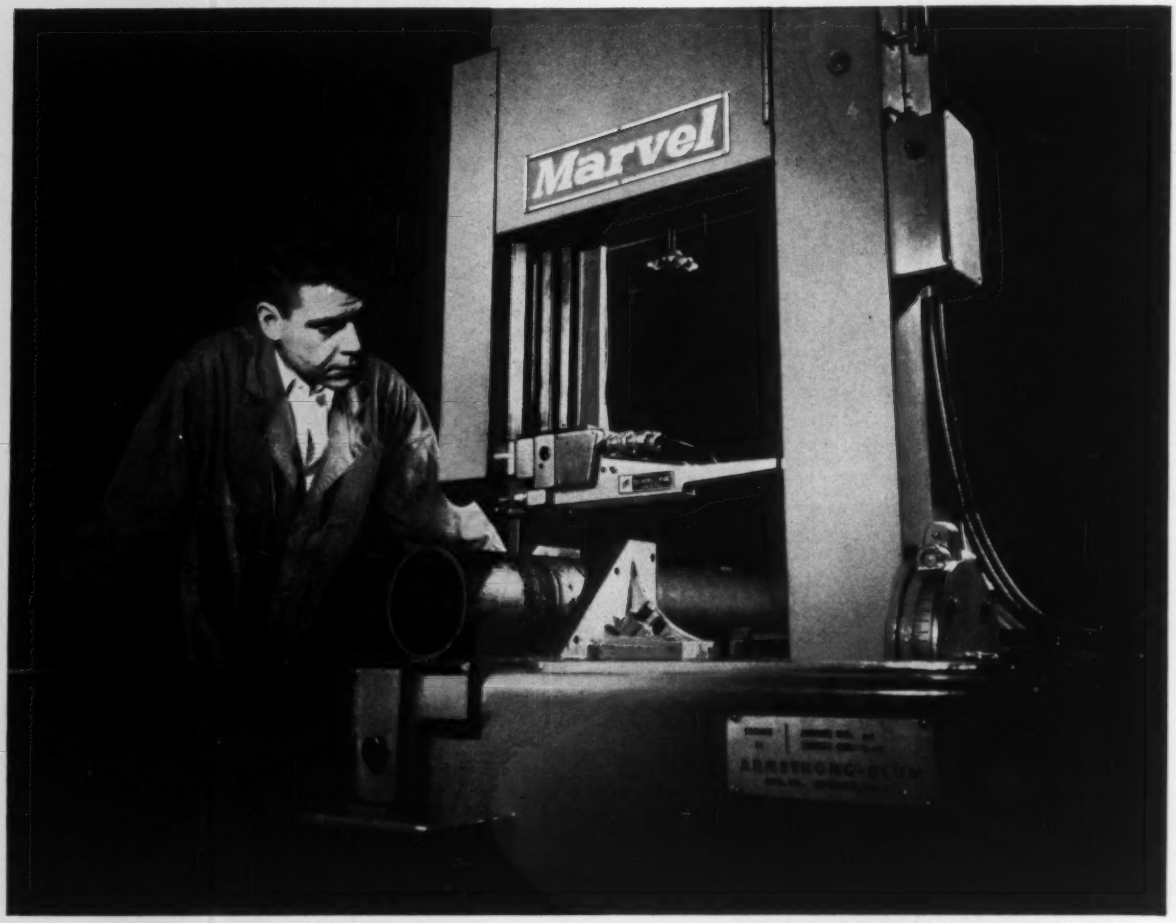
Business will continue at the same pace during the new year.

This is sure: Some 35,000 aerospace workers will lose their jobs. You need fewer workers to make a missile than an airplane. That will reduce the industry's payroll to about 325,000 persons.

But they'll still draw down $47 million per week, the same amount as last year. Why? The emphasis is on higher skilled, higher paid production and engineering employees.

It's a Rocket Launching Veteran

OLD FAITHFUL: Rocketdyne's A-7 liquid propellant engine has launched 65 Redstone rocket flights since 1953, including orbital launching of Explorer I, the first successful U. S. satellite. The Redstone is used as a booster in NASA's man-in-space Project Mercury.



He's Watching a Band Sawing Miracle

This band saw operator at the Bell & Gossett Company plant in Morton Grove, Illinois, is watching "Controlled Accuracy". . . accuracy, being held to within a few thousandths of being perfectly straight, and he can actually *see* the band blade being guided in the saw cut to produce this accuracy! No further machining is required before the pipe is welded into an assembly for a Bell & Gossett Heat Exchanger Unit.

Band sawing accuracy like this is nothing short of miraculous—especially when it can be done on a high production basis, as Bell & Gossett is doing. And when the same tolerances can be held on cut-off pieces from 2" to 18" in diameter, this MARVEL #81 Band Saw Machine can be truly called a precision machine tool.

The secret of this amazing sawing accuracy is in the MARVEL "SURE-LINE" Automatic Accuracy Control—a simple and extremely effective electro-mechanical servo-mechanism that continuously senses and automatically corrects any tendency of a band blade to drift to either side of a desired line of cut. The "SURE-LINE" unit literally "steers" the blade to make a straight cut. This permits the use of heavier feed pressures and, when desirable, higher blade speeds, to do the work faster, without sacrifice of accuracy. Incorporated in the new MARVEL #81 Series High Speed Heavy Duty Hydraulic Band Saws, the "SURE-LINE" permits full utilization of all the advantages of high speed steel band saw blades—while extending their usable blade life as much as 50%.

Before you buy any band saw machine, get complete details on MARVEL #81 Series Single Cut, or Automatic Shuttle Type Bar Feed Production Band Saws—the machines DESIGNED AND BUILT TO REDUCE SAWING COSTS. *Write for catalog today.*

ARMSTRONG-BLUM MANUFACTURING CO.
5700 West Bloomingdale Avenue • Chicago 39, Illinois

MARVEL Metal Cutting SAWS
Better Machines—Better Blades

Tool Plants Run at Half Speed

Industry Has Capacity for $1 Billion Yearly Business

The machine tool industry has run at little more than 50 pct of capacity for the past year.

Few builders foresee any substantial upturn for 1961. But foreign orders should help.
By R. H. Eshelman

■ As the year ended, preliminary data for November from the National Machine Tool Builders Association, revealed that overall 1960 cutting tool shipments will add up to another $500 million year. That's estimated to be only about half the industry's capacity.

It's apparent that this country is far from turning out the number of machine tools of which it is capable. Russia produced an estimated 160,000 machine tools — more than double the number of U. S. units.

Some Optimism—This isn't catastrophic yet. However, at present few people in the industry see anything on the immediate horizon to alter the trend.

However, in some quarters there's still cautious optimism for the long-range outlook. Widely expressed urgency for greater productivity in American plants can only be translated into being by more modern technology. This means new machines. Some feel that normal attrition should build up greater demand.

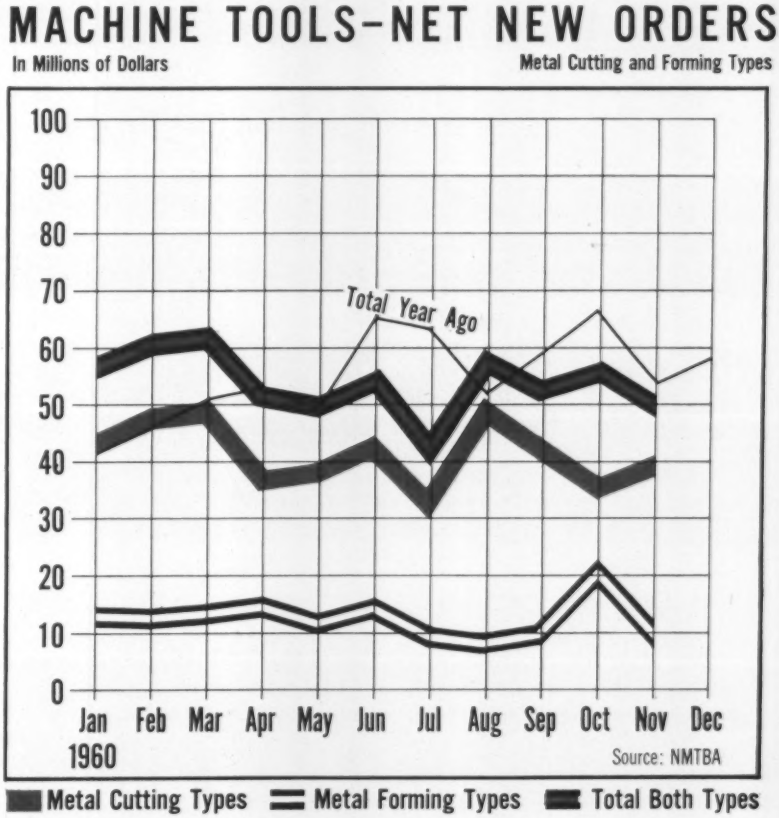
History Lesson — Just on past history, according to James K. Fulks, executive vice president of Ex-Cell-O Corp., the industry is due for a turnabout soon. He points out that present machines are operating in the nation's plants at a high level turning out autos, trucks, refrigerators, and other appliances. As facilities wear out and products change, manufacturers will have to come into the market again for replacements.

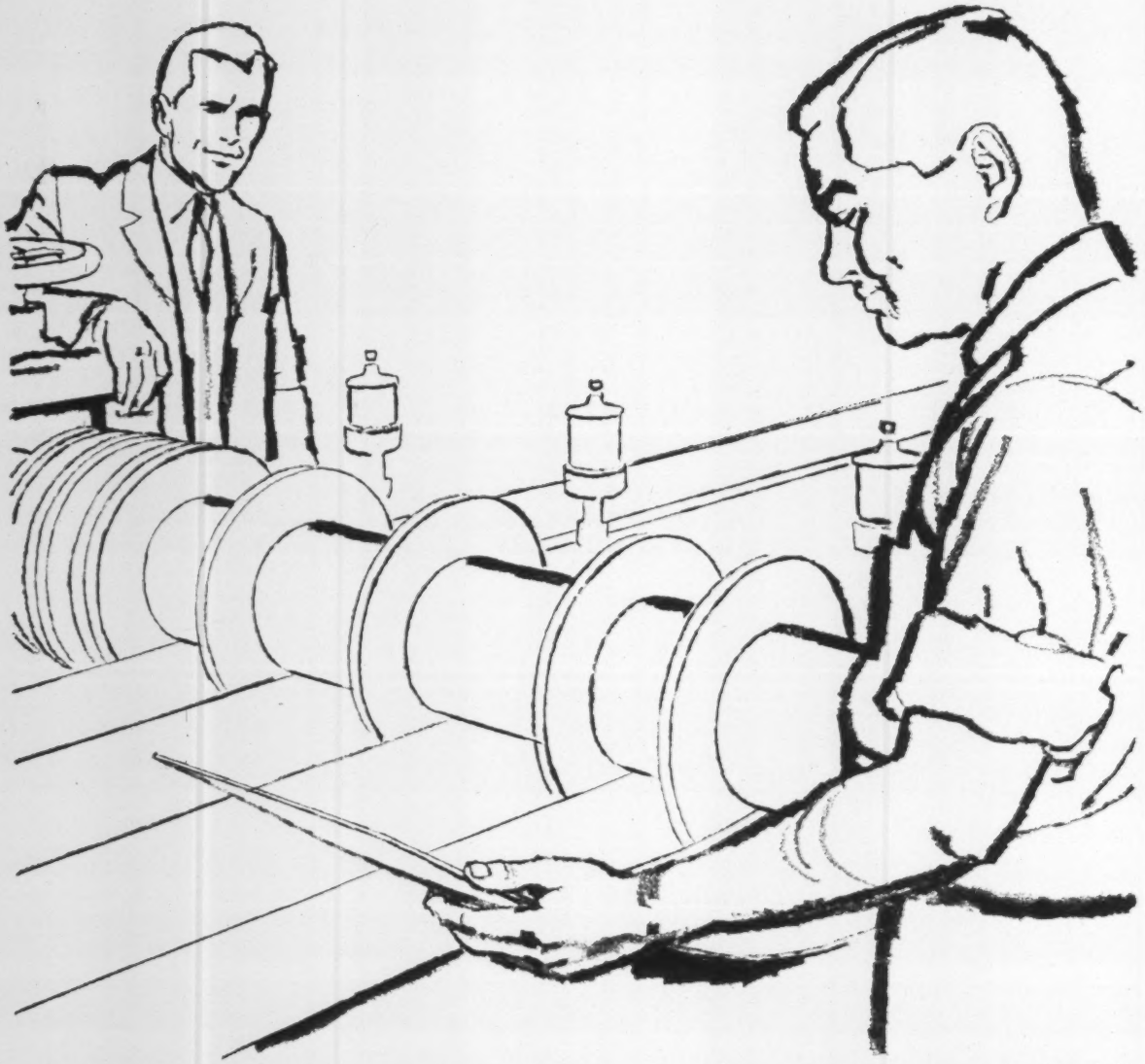
Big disappointment of the year was failure of a real buying surge to materialize after the Chicago Machine Tool Exposition in September. Many builders hope this will prove merely a delayed reaction; that more order activity will result in the new year.

Welcome Surprise—Big surprise of 1960, of course, was the high volume of exports of American tools. Much of this business can be regarded as one-shot type. Most of it has gone to plant expansion. But there are signs it may go on as long as the big boom in Europe continues.

H. A. Beyer, of DeVlieg Machine Co., recently returned from a business trip overseas. He believes the market there will continue to be good in specialized areas. "If you can show a substantial productivity increase, or better precision for your machine, you have a good chance, despite the price differential," he reports.

Do these signs point to growth of a real world market? Shortages of skilled labor in Europe and heavy backlogs of foreign machine builders could spell good news for some time.





Can you get longer edge life from your SLITTER KNIVES?

A·S·K for the answer!

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The answer is yes when you use slitter knives from A.S.K. (American Shear Knife Company). A.S.K. Slitter Knives last longer, stand up better under the heaviest jobs, reduce maintenance and replacement costs!

Why? Because A.S.K. has devoted years of research to the selection of proper alloys, and correct techniques in heat treating, precision grinding. For slitter knives that last longer, improve your slitting operation . . . Ask A.S.K.!

FREE HANDBOOK—Want a handy reference on the installation, operation and maintenance of slitter, shear and chipper knives? A.S.K. has the answers in an 88-page manual. For free copy, write American Shear Knife Co., Homestead, Pa.

G. M. Feiel, elected vice president and comptroller, Republic Steel Corp.

Detroit Stamping Co. — **H. C. Robeson,** named vice president and asst. general manager.

Crane Co.—**H. R. Riggs,** elected a vice president.

Vulcan Mold & Iron Co.—**C. F. Moersch, Jr.,** promoted to asst. to the president.

Cal-Metal Pipe Corp. of Louisiana—**K. S. Bayless,** elected executive vice president.

National Distillers & Chemical Corp. — **R. R. Herrmann, Jr.,** elected a vice president.

Firth Sterling, Inc. — **G. A. Wilson,** appointed vice president, purchases and special projects.

Globe-Wernicke Industries, Inc. —**Chester Devenow,** elected president; **W. D. Hahn,** named chairman of the board.

Aluminum Co. of America—**H. C. Erskine,** elected executive vice president; **E. B. Wilber,** named vice president, finance; **J. D. Harper,** elected vice president, Smelting and Fabricating Divisions; **G. W. Streepey,** elected vice president, Raw Materials and Refining Divisions; **M. W. Stanley,** elected treasurer.

Grove Valve & Regulator Co.—**Harold Wolpman,** promoted to senior vice president; **W. L. Connolly,** appointed vice president, manufacturing.

EMCOR Ingersoll Products Div., Borg-Warner Corp.—**E. M. Mason,** appointed purchasing agent.

Acoustica Associates, Inc.—**E. B. Cochran,** named vice president, finance.

Precision Castings Co., Cleveland Div.—**A. G. Witt,** appointed general sales manager.

The Carborundum Co.—**E. L. Anderson, Jr.,** appointed director, purchasing.

W. B. Boyer, elected vice president and treasurer, Republic Steel Corp.

The Champion Rivet Co.—**D. J. Champion,** appointed vice president; **J. A. Diemer,** promoted to asst. to the president.

Pullman-Standard Div., Pullman Inc. — **R. F. Bogan,** appointed manager, industrial marketing.

Wolverine Tube, Div. of Calumet & Hecla, Inc.—**E. J. Shadd,** appointed sales representative, Moline, Ill.

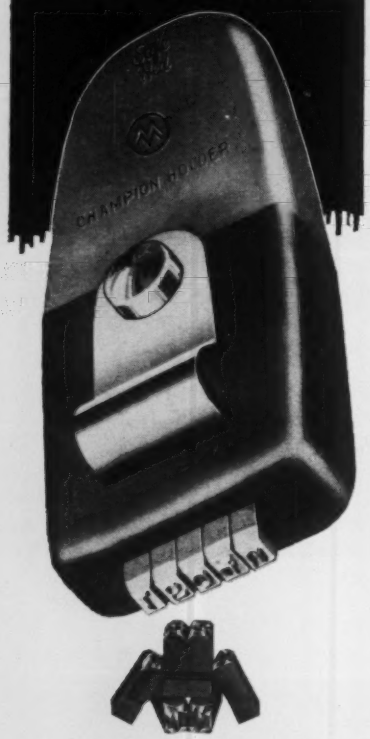
The Abrasives Div., Elgin National Watch Co. — **Ralph Peek,**

W. E. Gregg, appointed vice president, operations, Crucible Steel Co. of America.

E. A. March, becomes director, technology, Crucible Steel Co. of America.

S. A. Shuman, elected vice president and general manager, National Supply Div., Armco Steel Corp.

MARK IT
CLEARLY...
CHANGE TYPE
FASTER...
with
MATTHEWS
CHAMPION
STEEL TYPE HOLDER



Sturdily built, perfectly balanced, the Matthews Champion Steel Type Holder insures perfectly aligned, clear cut marking. Type changes are fast and easy, with the patented Matthews spring clip assembly. Type faces are precision-engraved on highest quality alloy tool steels.

Write for Bulletin 146-A29

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3999 Forbes Ave. • Pittsburgh 13, Pa.

promoted to district sales manager, diamond products.

Superior Valve & Fittings Co.—**A. P. Skowronek,** appointed manager, production.

Chrysler Corp., Engineering Div.—**A. E. Kimberly,** appointed chief engineer, vehicle reliability.

Gerald Lewis, appointed vice president, marketing and engineering, Cooper Alloy Corp.

Diamond Manufacturing Co. — **P. A. Laidlaw,** appointed general sales manager.

U. S. Steel Corp., Market Development Div. — **C. S. LeCraw, Jr.,** appointed asst. to the director.

E. F. Houghton & Co., Detroit Div. — **J. H. Richard,** appointed sales manager.

N. J. Vang, elected vice president, manufacturing, Cohart Refractories Co.

E. C. Manix, appointed vice president and general manager, sales, Quaker State Metals Co., Div. of Howe Sound Co.

Eutectic Welding Alloys—Southwestern Div., Inc.—**R. L. Carpenter,** appointed manager, Dallas Service & Training Center.

Armour Research Foundation — **Harry Schwartzbart** and **R. J. Van Thyne,** appointed asst. directors, metals research.

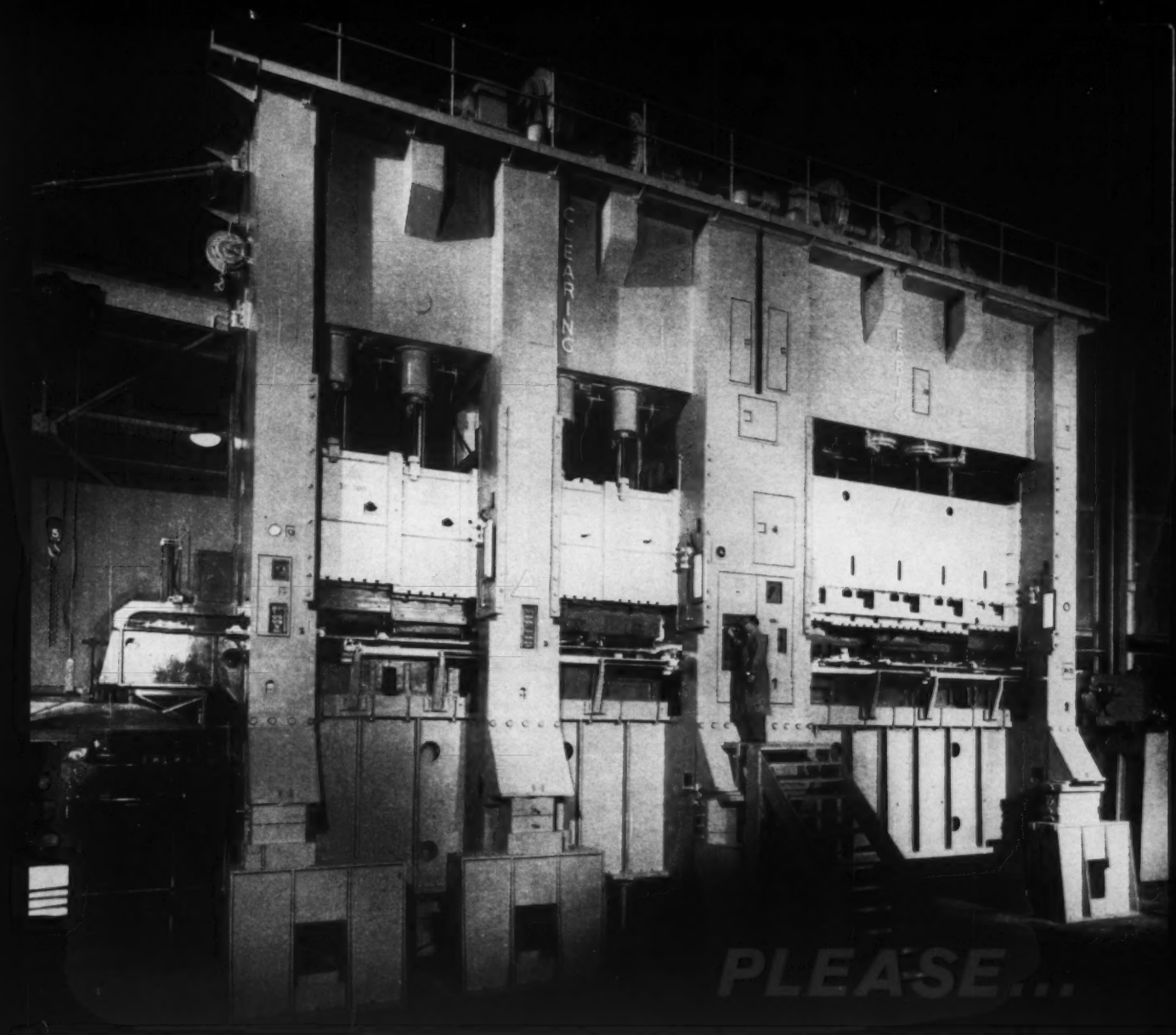
Great Lakes Steel Corp., Div. of National Steel Corp.—**C. C. Hilton,** appointed superintendent, primary mills, Ecorse, Mich., main plant.

J. H. Butler, elected vice president, The Binkley Co., Warrenton, Mo.

The Colorado Fuel & Iron Corp.—**M. J. Reynolds,** appointed superintendent, South San Francisco plant in California.

Atlantic Steel Co., Warehouse Div.—**J. T. Walkden,** named stain-

(Continued on P. 116)



DON'T FORGET TO TURN THIS PRESS OFF

(otherwise, we'll all be up to our ears in washing machines).

That's a man standing at right center of the photograph. He's not a little fellow either. The machine is 58 feet from left to right, but it's not remarkable for its size alone. It produces a small avalanche of washing machine covers every day. It does the job of a shop full of equipment because it performs all operations automatically. Just push a button and stand back.

Want to push a button and zip up your production while clamping the lid on rising costs? Call on Clearing. We'd like to talk. No obligation, of course.

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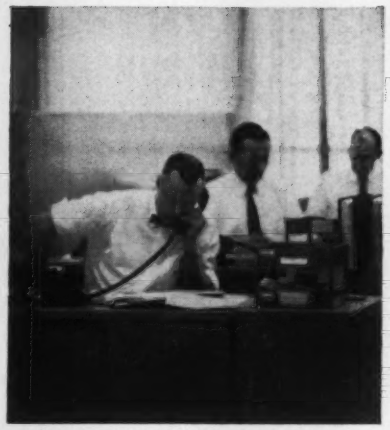
DIVISION OF U. S. INDUSTRIES, INC.
6499 West 65th Street • Chicago 38, Illinois

FROM CRUCIBLE LOCAL STEEL CENTERS*
YOU DON'T EVEN PAY FOR THE CALL. Free "ENTERPRISE" phone calls to the nearest Crucible steel center are available in most areas. For details, ask the Crucible service engineer who visits you.

"DIAL DELIVERY"



FOR ANY STEEL, ANY SERVICE, call the inside account salesman who services your company. He's your contact with the entire, integrated Crucible operation.

HIGH STOCK LEVELS OF STEELS, including Crucible's tremendous range of tool steels, enable each steel center to fill customers' largest orders at once.

FLEET OF TRUCKS AT EACH CENTER leaves regularly for customers' plants. Your order arrives at your receiving docks dependably on schedule.

Crucible's integrated operation enables you to order 16,000 specialty steel items — and confirm local delivery — with a single phone call.

Run down the list of special steels you need. You can get all of them — tool steels, high speed, stainless, alloy steels, and even titanium—immediately from the local Crucible steel center. This center is a single, integrated source for every steel and it saves time and money for you.

The steel center's procedures make ordering convenient, too. The inside account salesman can almost always confirm in-stock delivery of your order. But if he can't (which rarely happens), he can quickly locate them at other centers or at the mill. And he can do this *while you're on the phone* — because of Crucible's electronic inventory control and teletype systems.

The Crucible local steel center maintains all the facilities for fast service. It has a battery of saws: huge hacksaws and fast-cutting bandsaws that quickly process your order. And it has a fleet of trucks at its command. So, orders get underway the moment you hang up the phone.

A single phone call brings the services of Crucible's entire operation — integrated from steelmaking to local delivery to you. *Crucible Steel Company of America, Dept. PA06, Pittsburgh 30, Pa.*

MONTHLY STOCK LIST gives you up-to-date news on **local** stocks of specialty steels. Ask the Crucible salesman to put your name on the mailing list.

***FROM CRUCIBLE LOCAL STEEL CENTERS:** TOOL STEELS — Water, oil, air hardening, shock resisting, hot work, plastic and die casting steels in all forms, including bars, sheets, plates, drill rod, hollow bars, forgings and flat ground stocks • HIGH SPEED STEELS — Crucible's famous "Rex"® steels: Rex Thrift Finish rounds, hot rolled and cold drawn flats and squares, drill rod, forgings, sheets, plates, and tool bits • STAINLESS STEELS — Bars, sheet, strip, wire, cold heading wire, metalizing wire, plates, angles • FREE MACHINING STEELS — Crucible Max-el® rounds, hexagons, plates and brake die steel • ALLOY STEELS — Bars, billets, strip and sheet • COLD ROLLED CARBON SPRING STEELS • DRILL STEELS — Hollow and solid drill steels • ALUMINUM EXTRUSION DIE STEELS • HOLLOW TOOL STEEL • HARD FACING ROD • PLASTIC MOLD STEELS • PERMANENT MAGNETS • and many others.

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BRANCH OFFICES AND STEEL CENTERS: Atlanta • Baltimore • Boston • Buffalo • Caldwell, N. J. • Charlotte • Chicago • Cincinnati • Cleveland • Columbus • Dallas • Dayton Denver • Detroit • Erie, Pa. • Grand Rapids • Houston • Indianapolis • Los Angeles • Miami • Milwaukee • Minneapolis • New Haven • New York • Philadelphia Pittsburgh • Portland, Ore. • Providence • Rockford • Salt Lake City • San Francisco • Seattle • Springfield, Mass. • St. Louis • E. Syracuse • Tampa • Toledo • Tulsa

LOCATE YOUR *New* PLANT
ON AN ADAPTABLE
750 ACRE SITE,
IDEALLY LOCATED AT
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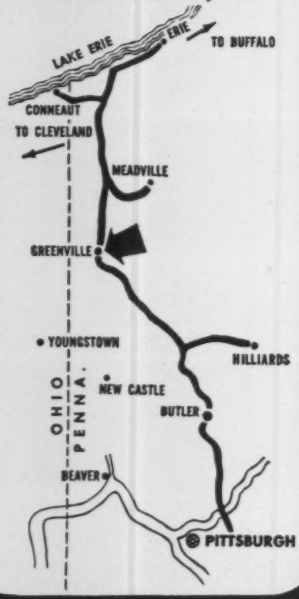

Here is an attractive, level, flood-free site of 750 acres that will provide the space you need for present and future production needs. It is ideally located only 80 miles from Pittsburgh and Cleveland; 150 miles from Buffalo.

This Bessemer site scores high when you consider these advantages: 24-hour delivery of steel and other basic materials; extensive deposits of coal, limestone, clay and aggregates nearby; an ample labor force of widely diversified skills; abundant supplies of power, gas and water.

Investigate today! Complete, confidential site planning and industrial engineering services are available, without obligation.

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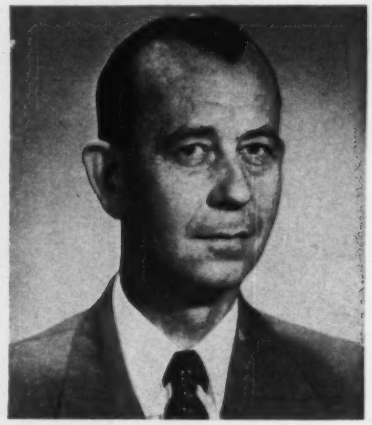
The Bessemer Man is at your "Site Service"

(Continued from P. 112)
less and aluminum products sales manager.



H. E. Miller, appointed chief metallurgist, Cleveland district steel plant, Republic Steel Corp.

W. P. Goodman, Jr., named Indianapolis district sales manager, Inland Steel Co.

Frederic B. Stevens, Inc.—**Ralph Tomlin,** appointed foundry sales representative, parts of Wisconsin.

The Youngstown Sheet & Tube Co.—**W. J. Harnisch,** appointed as legislative counsel.

Duff-Norton Co.—**N. F. McA'Nulty,** appointed sales representative, New England.

Mansaver Industries, Inc.—**Harvey Bradley,** appointed service and development engineer.

Stromberg - Carlson's Telecommunication Div.—**C. R. Fisher,** appointed manager, product engineering.

Electric and open hearth steel castings from 1 lb. to 100 tons.

Rolling on a PITTSBURGH Breakdown Mill at ANACONDA ALUMINUM

As a major part of [illegible] expansion program at its Terre [illegible] Indiana plant, Anaconda Aluminum Co. has [illegible] this PITTSBURGH 66-inch four-high cold rolling Breakdown Mill. This equipment produces aluminum strip with a minimum thickness of .012" up to 60" wide at a speed of 1,200 feet per minute to help meet the increasing volume of orders specifying exacting gauge tolerances and surface quality. The mill also produces foil stock for Anaconda Aluminum's Foil Division at Louisville, Kentucky.

Important design features of this PITTSBURGH mill include hydraulic roll crown control, special reel drives to provide added flexibility and strip gauging equipment for automatic gauge control.

For all your requirements in rolling mill equipment and related facilities, contact PITTSBURGH.

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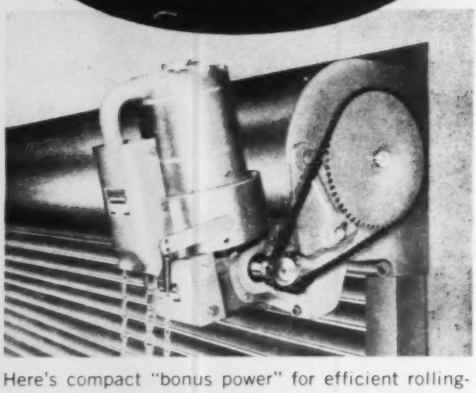
ENGINEERING & MACHINE DIVISION

Pittsburgh Steel Foundry Co., Textron Inc.

564 FORBES AVE., PITTSBURGH 19, PA. • PLANTS AT GLASSPORT AND McKEESPORT, PA.

Kinnear Has *THE* Door...

...and the finest power operator ever devised



Here's compact "bonus power" for efficient rolling-door action! The New Kinnear Motor Operator permits either face-of-wall or wall-bracket mounting — vertically or horizontally — for either adjacent or thru-the-wall door control. **Thermal protection** is built-in; motor cuts out before overload damage can occur. **Centrifugal clutch** starts door action with no shock, no jolt, no stalling! New **worm gearing** extends the life of the operator-unit even beyond previous limits! **Seven sizes** assure capacities for every need. For the best possible push-button door efficiency, combine the Kinnear Motor Operator with . . .

Kinnear *invented* the door with the interlocking steel-slat curtain *more than half a century ago!* And today's Kinnear Rolling Doors still lead in all-around door efficiency!

Opening straight upward they coil smoothly out of the way above the doorway.

They clear the entire opening quickly, from jamb to jamb and from floor to lintel.

They stay out of reach of damage by wind or vehicles.

All floor and wall areas around Kinnear-equipped doorways are always fully usable.

Ceiling space also remains clear, for unimpeded use of overhead cranes, hoists, conveyors, ductwork, or lighting.

The tough, flexible, all-metal Kinnear curtain assures long service, low maintenance costs, extra protection against fire, wind, intrusion, or vandalism.

Heavy galvanizing (1.25 ounces of pure zinc per sq. ft. of metal, ASTM Standards) — plus Kinnear Paint-Bond — adds high resistance to weather, wear, and corrosion.

For push-button or remote-control efficiency, there's no match for the all-new Kinnear Motor Operator (optional, at left).

Kinnear Rolling Doors are built in any size. Get Kinnear recommendations on your door needs. Write the Kinnear Mfg. Co. *(Factories: 1760-80 Fields Ave., Columbus 16, Ohio, and 1742 Yosemite Ave., San Francisco 24, Calif.) Offices and agents in all principal cities.*

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Saving Ways in Doorways

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Kinnear Motor-Operator Bulletin . . Kinnear Rolling Door Catalog.
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Kinnear Rolling Doors

Studies Cutting Problems

Many shops are having trouble trying to cut the new alloys; they can't be handled like standard metals. Refractory metals pose an especially tough barrier. However, a midwest research organization says these problems are not insuperable. Some of its recommendations in high-temperature-alloy machining will soon be available through the Air Force.

Who Is GIGI?

GIGI stands for "gamma inspection of grain integrity." It's a quality-control method based on radiation given off by cobalt 60. Flaws as small as 0.03-in. inside rocket motors several feet in diam can be detected without using X-rays. Inspection is by introducing a "pill" of radioactive cobalt inside the hollow core of the motor and measuring the intensity of gamma rays given off.

Ignition Point Is Factor

The behavior of metals at high temperatures is of vital importance to propulsion design engineers also. Oxidation and ignition traits must be known for designing rocket engines. Recent studies show that stainless steels with high nickel contents are especially suitable.

Novel Approach Succeeds

Development of a method for making cylindrical skin sections has widened the scope for lightweight, high-temperature, magnesium-thorium alloys. The technique involves welding and shear forming. The skin is wrapped and welded before heat treatment. After treatment, shear forming contours the skin. Next, an aging cycle develops the full T8 properties of the alloy.

Hazards of Outer Space

Can a pea-shooter sink a battleship? Maybe not. But pea-sized meteoroids may be able to shoot down a rocketship. These minute particles whiz through space at speeds from 35,000-200,-000 fps—fast enough to puncture the skin of a space vehicle or ruin its instrumentation. Some of the answers may be found at a unique shooting gallery. There, tests are being made of the effects of tiny pellets shot at simulated space-vehicles.

Keep Up With Welding

Want to know how to weld titanium and precipitation-hardenable stainless steels? Are brittle fatigue and fracture problems? Four new reports from the Defense Metals Information Center discusses developments in the fabrication of structures for space and underwater craft.

Aid Small-Plane Financing

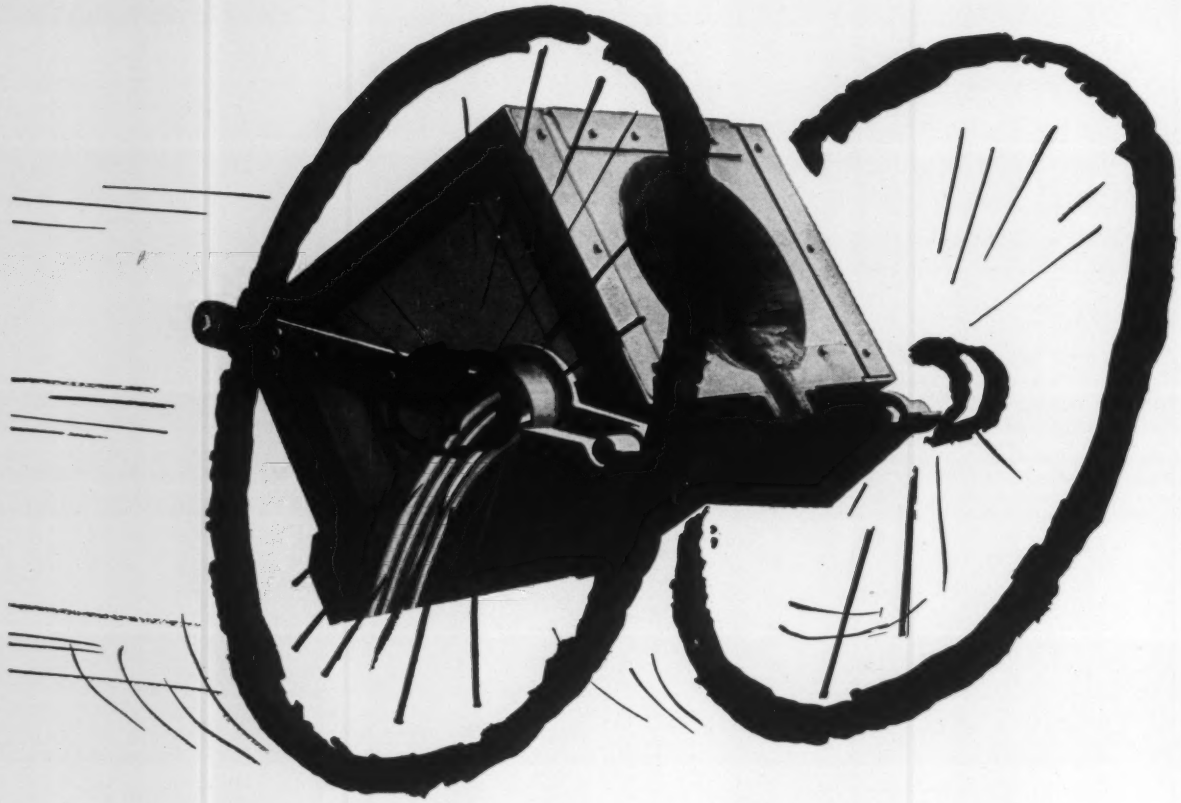
More and more executives must be taking to the small, private airplane. One aircraft company reports that over 20 pct of the 1961 business-aircraft sales goal has already been reached. To aid in merchandising, the same company will offer a finance plan which allows customers to make major improvements by credit purchases of modernization kits and exchange engines.

Who Gets the Engineers?

Wondering where all the engineers go? A recent statement by an aircraft industry spokesman puts one-third of the available practicing U. S. supply of engineers in the aircraft industry. But, by the same token, he reckons that at least one-third of industrial research and development is carried on by companies in the aircraft and missile fields.

Take New Look at X-15

Overlooked in current focus on satellites, missiles, and rockets is the acceptance of the X-15 rocket plane. It may actually be the best candidate for the first man in space. The X-15 also underscores new military thinking. Winged-type spaceships that land on conventional airports are being favored for military space missions. Advantages: cost, reliability, flexibility and strategic superiority.



WHY INDUCTION MELTING IS ON THE MOVE AGAIN

Take the basic advantages of induction melting.

Add improvements that save time, cut costs, and increase service life.

That's what Inductotherm has been doing for the past seven years. The result is a new style of induction melting that's far more flexible, far more useful, far more desirable.

For example, Inductotherm introduced the first fully assembled control cubicle that combined all capacitors, controls, and safety devices in one pre-tested unit. And Inductotherm was first also with the Inducto "Integral" series, packaging the motor-generator set *in the control console.*

Inductotherm cut the cost of power and of pit construction by feeding leads through the trunions of tilting furnaces. And service life has been lengthened . . . maintenance reduced through the use of rigid, Heliarc welded furnace construction.

New Inductotherm ideas have induction melting on the move

The biggest innovation in induction melting has been the Inductotherm concept of service. Not just fast repairs and overnight replacement of parts (even M-G sets) . . . but a basic concept: *Inductotherm is out to fit induction melting to your needs.* We will make every effort to improve our equipment and the induction technique, never asking you to trim your needs to the limitations of our equipment.

If you'd like more information on Inductotherm furnaces, write for Bulletin 70. But, for a taste of Inductotherm service, ask to have an engineer call. Inductotherm Corporation, 412 Illinois Ave., Delanco, N. J.

INDUCTOTHERM

Survey Report:

What Metalworking Executives Forecast for 1961

■ The year-end attitudes of metalworking executives will have a strong impact on business throughout a good part of 1961.

Based on recent experience and their own estimates they will make judgments on capital spending, cost-cutting and marketing programs which will be turned into action in the immediate months ahead.

'61 Outlook—To find out how they feel about the outlook for sales, profits, price increases, wages and materials costs in 1961, The IRON AGE surveyed some 2,200 metalworking executives during the early weeks of December.

The results are reported in this survey, for the industry as a whole, and for some 20 different industries within metalworking.

The survey covered all plants in these industries that employ at least 50 or more production workers. The replies came from companies that represent 40 pct of the production worker employment in these 20 metalworking industries.

Pct Replies—This 40 pct represents 386,750 workers out of a possible 966,000 production workers employed in these industries.

The 903 executives replying to this year's survey come to 41 pct of the 2,200 queried.

Overall Summary and Reports by Industries

Summary ..... P. 122

Construction Machinery ..... P. 128
Conveyors, Cranes and Hoists ..... P. 132
Copper and Brass Rolling ..... P. 136
Electric Motors ..... P. 140
Switchgear & Electrical Controls... P. 144
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Pumps and Compressors ..... P. 188
Steel Forgings ..... P. 192
Steel Foundries ..... P. 196
Welding Equipment ..... P. 200

Detailed Figures—One of the important features of the survey is the detailed breakdown of the answers by industry. Each group of replies is classified according to the government's Standard Industrial Code (SIC), on a 4-digit basis.

For example, replies from executives in malleable iron and steel foundries are classed under SIC 3322 and 3323 respectively, rather than under the broader iron and steel foundry group, SIC 332.

For companies selling to both or either of these groups, this distinction is important. It also enables others to judge more accurately the future course of specific industries.

1961: Tighter Squeeze on Profits

Here is the 1961 outlook for sales, profits, selling prices, wages and materials costs as reported by metalworking executives in 20 industries.

Industry by industry reports begin on p. 127.

Sales: Overall Trend Is Up

▪ Most metalworking executives replying to this survey look for higher sales volume in 1961.

Some 49 pct expect sales to top those of last year. The next largest group, 28 pct, see 1961 sales holding about level with 1960. Only 23 pct forecast a sales drop in '61.

Several industries ran well ahead of the rest of the group in forecasting higher sales for next year.

Leading the way was the nonferrous casting industry with 76 pct of the executives in this group predicting higher sales. Next came manufacturers of welding equipment with 64 pct of the industry's executives looking to top 1960.

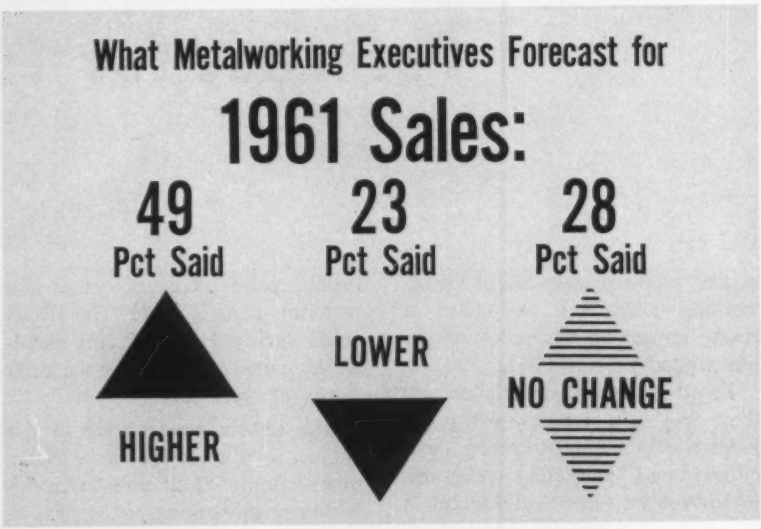
Profits: Most See '61 Drop

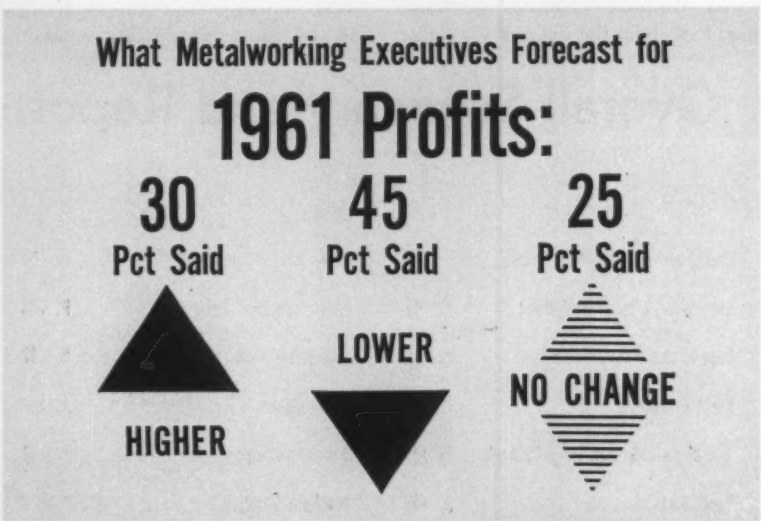
▪ Even if sales rise, few executives in the 20 industries surveyed expect profits to go along with them.

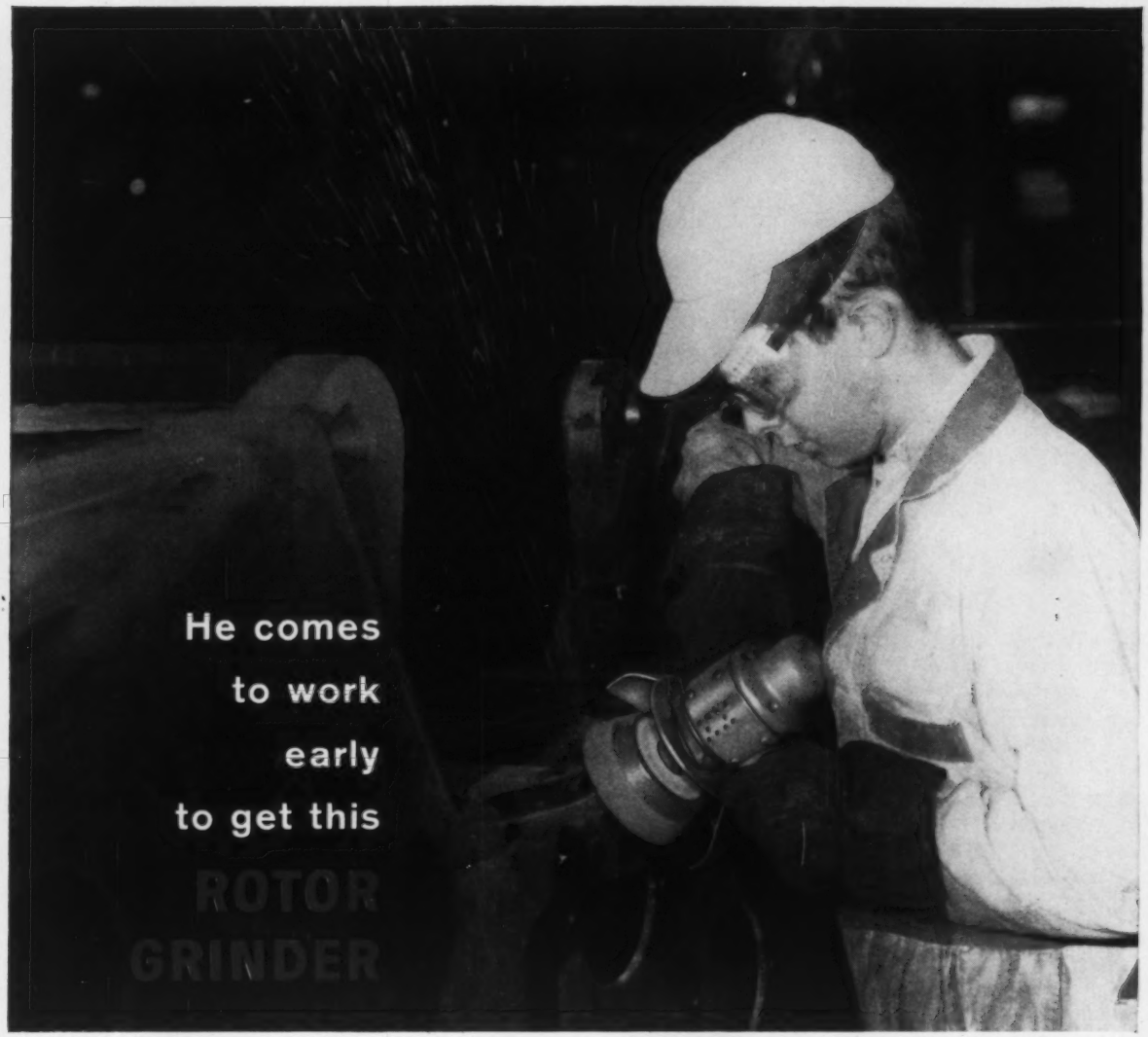
The greatest number of metalworking executives, 45 pct in fact, look for lower profits in 1961. Another 25 pct see no change in their 1961 profit picture. However, the remaining 30 pct hold out hope for higher profits this year as compared with 1960.

Wages, materials costs and foreign competition were among reasons given by metalworking executives for the slimmer profit outlook. Price-cutting, however, seemed to be the most significant factor in the lower profit picture for 1961.

Continued on P. 124







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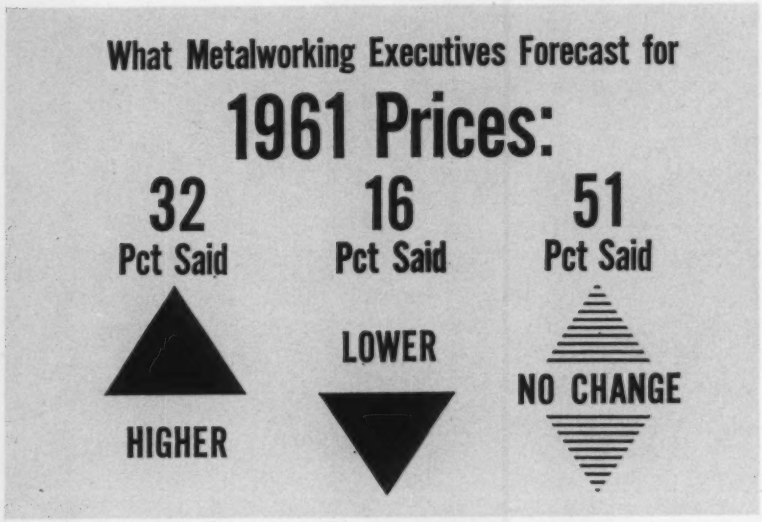
Continued from P. 122

Prices: Steady, Some Cuts

■ Holding the 1960 price line throughout this year seems to be the order of the day for a majority of metalworking industries.

A majority of 51 pct of the executives say their companies will not install higher price schedules this year. Another 32 pct of these executives do plan price boosts. However, some 16 pct plan to drop prices to meet competitive pressures.

At best, most companies are hoping that higher sales will bring price stability and a return to "price integrity."



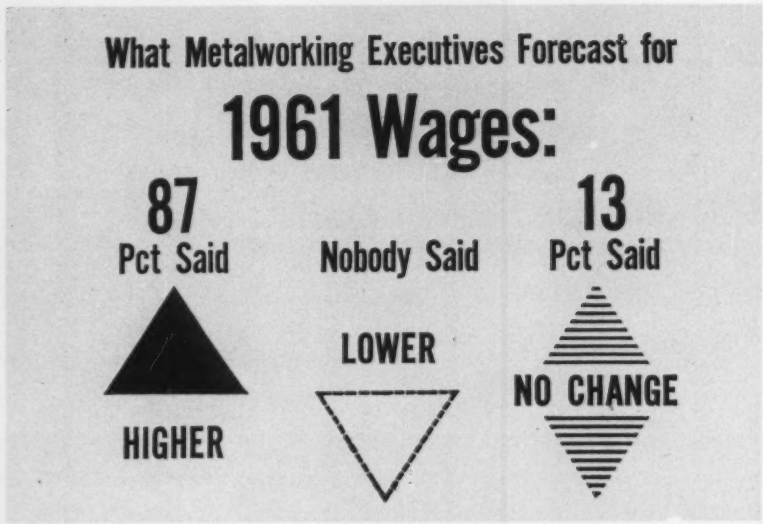
Wages: No Drop in Sight

■ An overwhelming majority of industry executives see their wage costs climbing in 1961. None predict a wage drop.

Some 13 pct of them forecast that 1960 wage levels will hold steady throughout the year. But a solid 87 pct look for higher wage costs.

Undoubtedly, the wage-cost factor is a big reason for the anticipated drop in profits this year.

In some industries, over 90 pct of the executives reporting in this survey said higher wages will be the profit bugaboo in 1961.

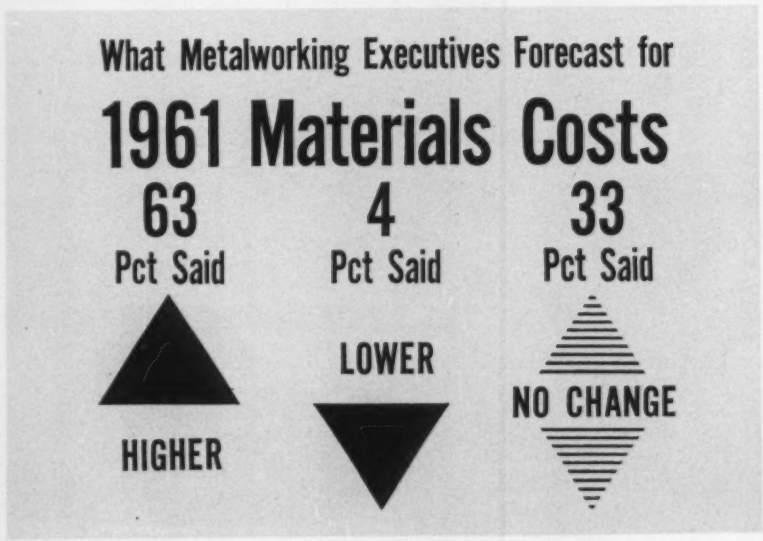


Materials: Will Cost More

■ Along with wages, most metalworking executives in these 20 industries forecast higher materials costs next year. But the percentage is not nearly so great.

Some 63 pct said they would pay more for the materials they buy in 1961. Another 33 pct expect little or no change. Only 4 pct could see any chance of materials costs dropping down.

Hardest to be hit by higher materials costs in 1961 seems to be machine tool builders and manufacturers of heat treating equipment. Ninety pct of the furnace makers forecast higher costs.



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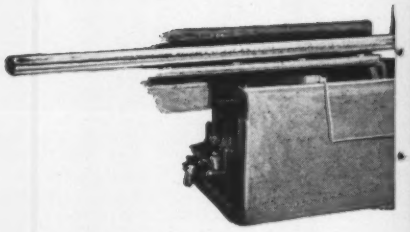

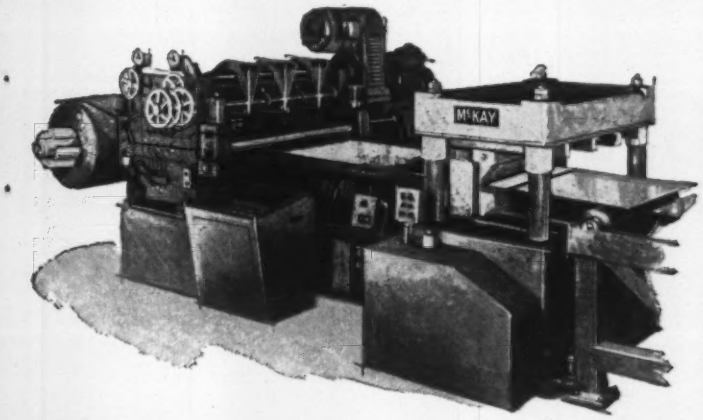

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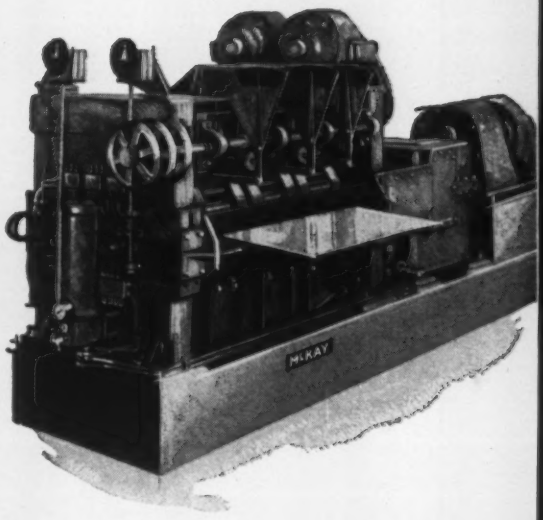

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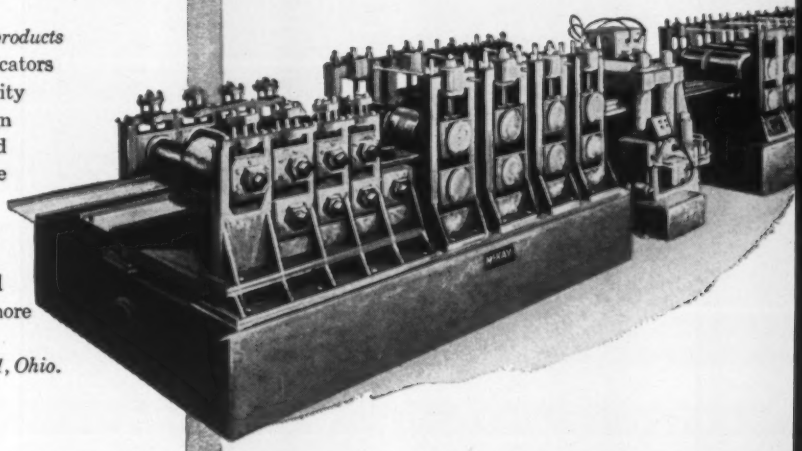
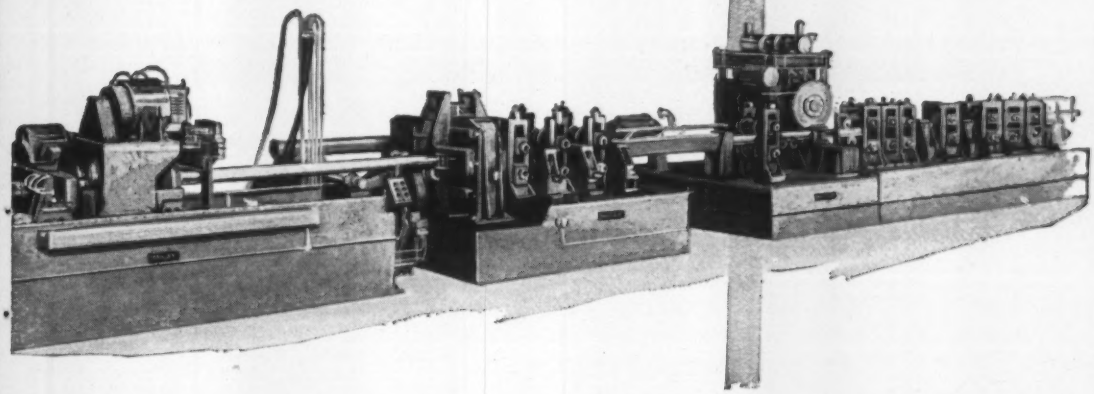


McKAYMATIC* FORMING MILLS



Profits Will Probably Drop

While the sale of construction machinery will be slightly higher this year, profits should drop.

Price cutting, foreign competition, and increased costs hurt the industry in 1960. Also, construction work was below anticipated levels.

■ Sales of construction machinery will be slightly higher this year than in 1960, but the squeeze on the profit margin will continue to tighten and profits will probably drop.

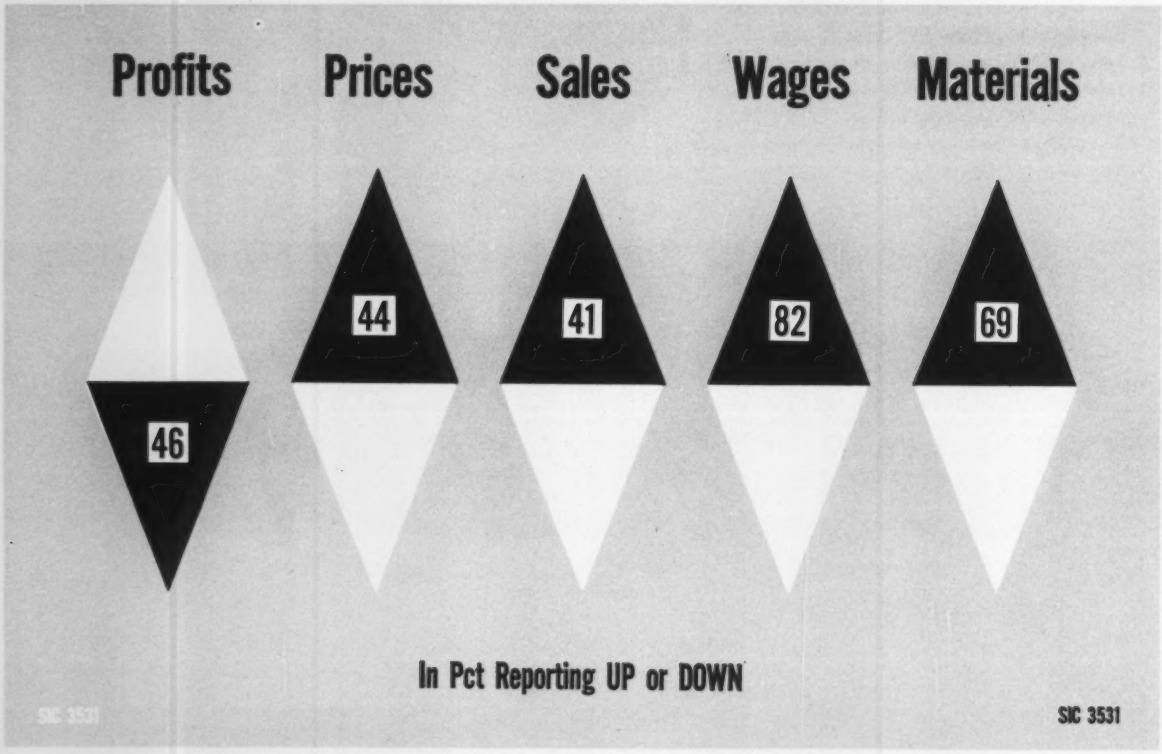
This prediction is the result of an IRON AGE survey covering all plants in this industry that employ at least 50 production workers. Replies represent 35 pct of the employment in this group.

Manufacturers also look for an increase in the selling price this year. However, bigger jumps are expected in the cost of labor and materials.

The Problem—Almost every response to the survey reveals a decline in profits in 1960. And the situation seems to be growing worse. Last year the industry was optimistic about 1960's potential and confident about the sales outlook.

However, price cutting, foreign competition, and increased labor and material costs have cut profits. Then, too, 1960 didn't pan out as well as expected for the construction industry. Housing starts, in particular, were down. And highway programs weren't pushed to any

More Sales, But Less Profits in 1961



great extent. In fact, the Dept. of Commerce says public construction was down nearly 2 pct in 1960.

According to some manufacturers, the publicity given to 1960's construction potential caused many to over produce. This led to price cutting within the industry to meet foreign and domestic competition.

Steel Production Hurt—Other industry leaders point out that the lull in steel production has had a definite bearing on sales.

Whereas the construction machinery industry has been coming out with several new developments in recent years, the chances are that 1961 will not see too many changes.

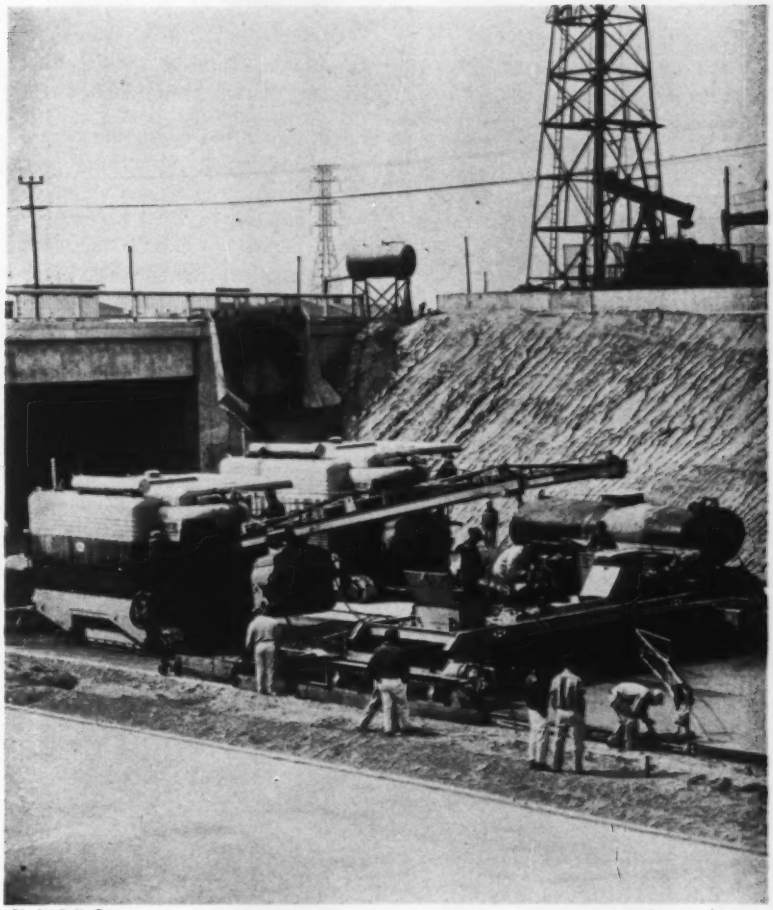
The reason for this is overstocked inventories and a cutback in research and development. Many of those responding to the survey note that the reduced profit margin meant expenditure cutbacks. One of the areas most affected by this was R&D.

Another Factor—Also considered to be hampering the industry's profits is the increased cost of components. Many say that component parts comprise as much as 35 pct of the total selling cost of the machinery.

SIC 3531

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	32 Pct	25 Pct
100 to 249	32 Pct	35 Pct
250 and over	36 Pct	40 Pct



Chain Belt Co.

What Industry Executives Say

Then, too, the industry says, 1960 was an election year and many buyers were hesitant to make large commitments. In this respect, 1961 could result in increased orders.

Generally, the construction machinery industry, like others in 1960, was plagued by increased costs and lower profits. The outlook for 1961, while not optimistic, is definitely encouraging. The industry doubts there will be a solution soon for the rising costs, but hopes that increased construction activity will be one step toward offsetting expenses.

"The chief reason is that we are forced to hold the line on prices because of competition while we must absorb higher taxes, higher material costs and higher labor costs." G. P. Towle, President, **Sturtevant Mill Co.,** Boston, Mass.

"Price cuting is the prinicipal cause of lower profits. Instead of trying to get more than your share of the available jobs at no profit, sell fewer jobs and then get them done more efficiently. Taxes and high labor fringe benefits are the

Continued

next two millstones around the industry neck." Edward Allen, President, **Star Iron & Steel Co.,** Tacoma, Wash.

"Price cutting, taxes, and high labor and material costs are reducing profit margins. The trend cannot be reversed until the continuous rise in labor costs is checked and government allows business to retain enough of its earnings to keep its facilities up to date." G. C. Smith, President, **Smith Engineering Works,** Milwaukee, Wis.

"Price cutting is on the increase by plants which do custom work and need to keep a good volume of work coming in. It's becoming a 'dog-eat-dog' business. Other manufacturers face the same problems. The real question facing manufacturers is: 'Are we better off with some work and no profit, or no work and no profit?' " D. G. McIntyre, Vice President, **Skagit Steel & Iron Works,** Sedro Woolley, Wash.

"Too many times prices are dropped solely to make sales rather than because of cost reductions. The only solution to the problem of squeezed profit margins is to control inflation, especially labor costs, so we can compete with imports." W. H. Schnacke, President, **Schnacke Manufacturing Corp.,** Evansville, Ind.

"Price cutting, increased taxes, and increased labor costs are all concerned, I think, with 'lack of principle' as being the major catalytic agent responsible for their precipitation of a trend toward lower profit margins. Unless all three participants in this reactionary trend, namely, management, government, and labor, get together on a cooperating basis of mutual problem diagnosing, nothing will be accomplished. In fact, if we could find the cure for price cutting, taxes, and labor costs, then foreign competition and the inability to modernize would take care of themselves." C. L. Fricker, Purchasing Agent, **Lippmann Engineering Co.,** Milwaukee, Wis.

"Taxes and labor costs are the most important to us. We wish we knew what we could do to reverse the trend, but our post-election opinion is that the situation will get a lot worse before it gets any better." M. M. Findley, Assistant Manager, **Badger Machine Co.,** Winona, Minn.

"The sale of replacement parts is an important part of the construction machinery business. We who have created the machine and designed the parts from which it is made are suffering from 'pirate' suppliers of these parts. They have made substantial inroads in the industry. In general, they offer an inferior product at a cheap price, but some of them are of acceptable quality." Vincent S. Penote, President, **Cleveland Trencher Co.,** Cleveland, O.

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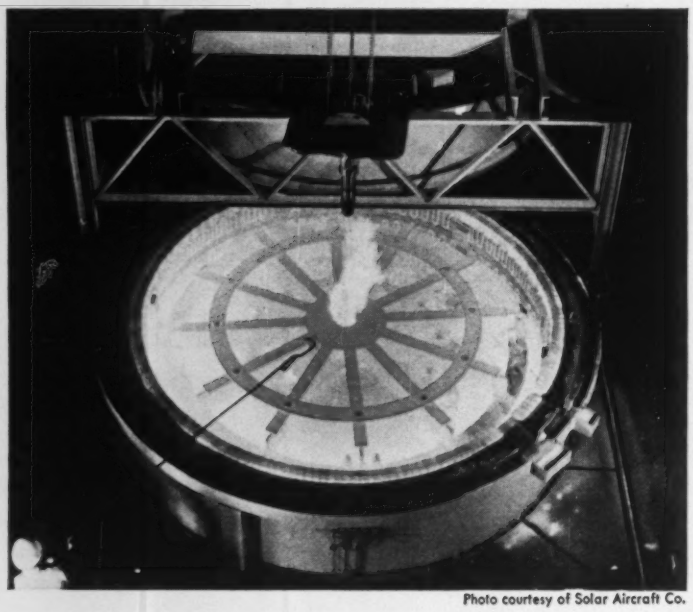
RA 330 supports rocket cases in pit furnace 10 ft. diameter by 30 ft. deep.

RA 330 provides strength at 1900° F. to support, without fear of dropping, a 3500 pound load; resistance to thermal shock of rapid heating and air quenching; resistance to furnace atmosphere and oxidation.



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Sales and Costs Will Rise

Sales of handling equipment will rise in 1961. But so will labor and material costs.

Manufacturers are more reserved in making predictions this year. Automation could hold the key to a good year.

■ Conveyor, crane and hoist makers predict increased sales and level profits in 1961.

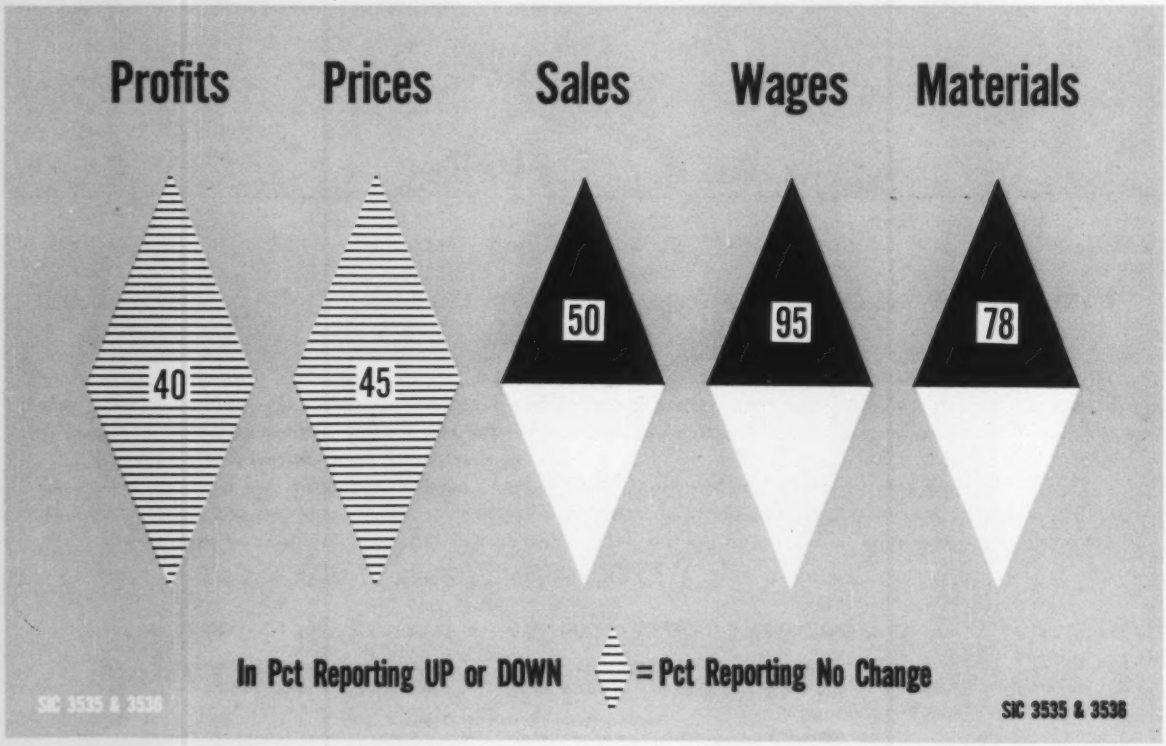
An IRON AGE survey of all plants in this industry that employ at least 50 production workers brought forth these results: Nearly 75 pct of those responding say sales will remain the same or go higher. The selling price of equipment, according to 90 pct, will also increase slightly. However, 80 pct of those surveyed report profits will remain the same this year or, if anything, dip downward.

The large majority expect the cost of labor and materials to increase significantly.

Less Optimism — Producers are more reserved this year and show much less optimism than at the start of 1960. At that time they had hopes of cutting costs in a drive for larger profits. Instead, costs have spiralled.

What had been expected to be a good year was also hampered by the

Can Increased Sales Offset Added Costs?



low level of steel production. This cut down the requirements for industrial trucks and other equipment.

Though 95 pct report that labor costs will be up in 1961, there appears to be less worry here as far as profits are concerned. The industry feels it can gauge its labor expenses in advance and allow for it. However, the cost of materials, which 78 pct say will climb, cannot be effectively gauged. And this is probably the biggest single factor in the industry's selling price.

Price Cutting Hurts—If any one factor can be pin-pointed as the reason the profit margin was squeezed in 1960, it would be price cutting. Worried by foreign competition and increased imports, many distributors offer large discounts.

The industry hopes to combat foreign competition in 1961 with newer products and a quality sales approach. New products, such as electronic warehousing, memory systems for sorting and moving, and new uses for closed-circuit television, are also expected to have an increasing effect on the 1961 market.

Producers are giving thought, too, to foreign manufacturing possibilities. Confronted with higher wages, taxes and costs, the industry may be making some moves overseas. However, this would be on a very limited scale in 1961.

Automation Hopes — But, for now, manufacturers say they still have hopes of rebounding with greater use of automation. There is a definite trend toward better handling, and many producers will be turning out completely automated and programmed systems for moving raw materials and finished goods.

SIC 3535 & 3536

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	43 Pct	47 Pct
100 to 249	29 Pct	8 Pct
250 and over	28 Pct	45 Pct

Link-Belt Co.

What Industry Executives Say

■ "Low production in the steel industry has cut down the requirements for industrial trucks. As a result of this, manufacturers of industrial trucks are cutting prices to secure orders. And this has to be done to maintain economy in their production departments." M. M. Botnick, General Sales Manager, **Silent Hoist & Crane Co.**, Brooklyn, N. Y.

"Price cutting is the No. 1 problem in our industry. A major por-

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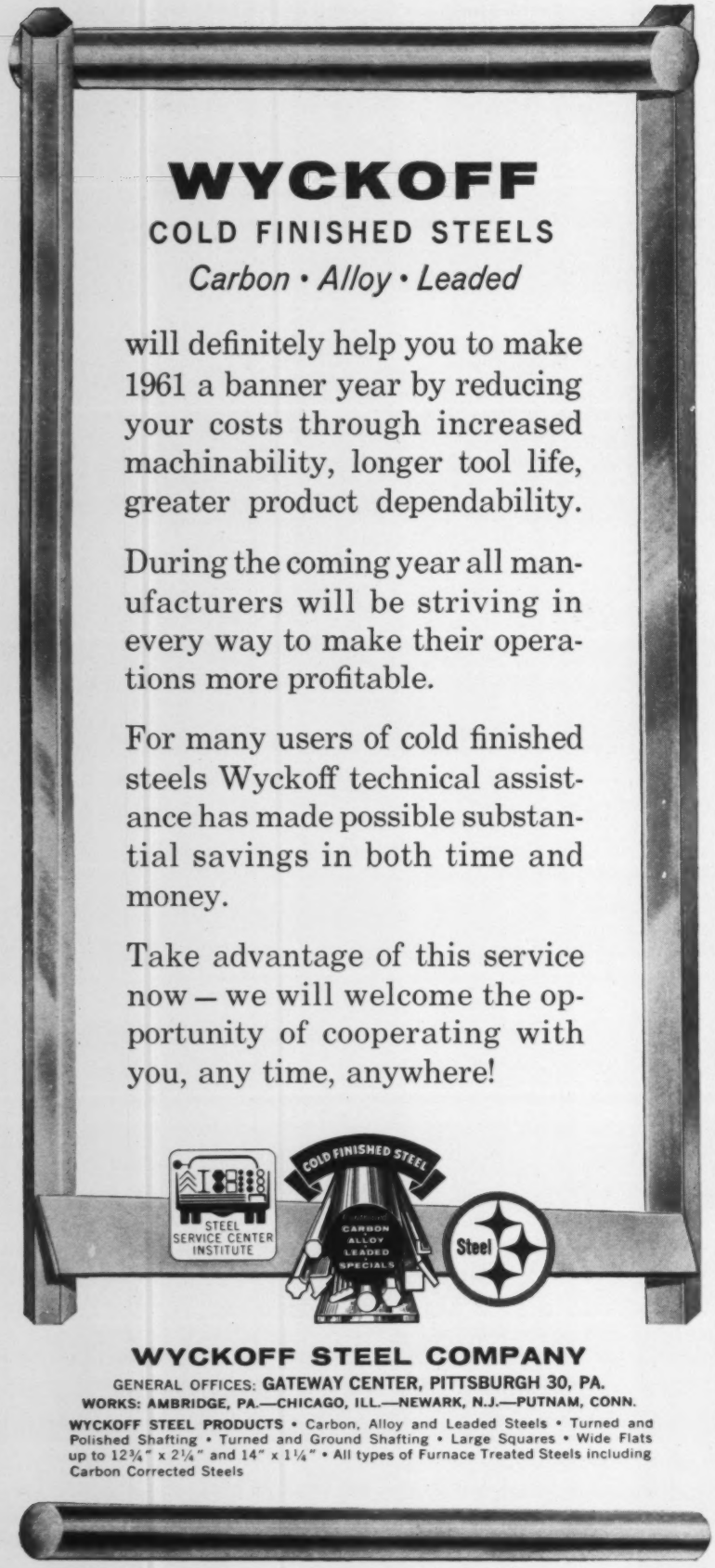
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tion of the companies in this industry are operating in the red. In general, it's a sick industry." F. L. Pischke, President, **American Monorail Co.,** Cleveland, O.

"It's too late now. We can look forward to higher wages, higher taxes, and an accelerated flow of American capital abroad where manufacturing conditions are better." J. B. Spain, President, **Alvey Ferguson Co.,** Cincinnati, O.

"We feel that one of the principal reasons for inadequate profit margins in the conveying industry is the current surplus of production capacity which has resulted in price cutting — oft-times below selling costs. We know that this is definitely true in two of our major product lines.

"Labor costs have climbed materially over the past several years, but the increase in hourly rates or salaries could readily be absorbed by improved production and material handling facilities if it weren't for the increased cost of so-called fringe benefits.

"With manufacturing plants in three states and sales offices in four others, we are quite conscious of the country-wide increases in local and state taxes. These have not been compensated for by a corresponding decrease in Federal taxes. Percentage-wise, these increases are quite material and are becoming a major factor in our so-called 'overhead burdens,' and a factor in our profit margins. Another factor which has exerted considerable pressure is the very substantial increase in freight rates." Russell B. Mass, President, **Screw Conveyor Corp.,** Hammond, Ind.

"We have maintained a firm pricing policy and we are not interested in bidding or taking any job that does not return a fair profit. Others in our industry do not maintain such policies." C. L. Fell, Vice President of Marketing, **American Monorail Co.,** Cleveland, O.

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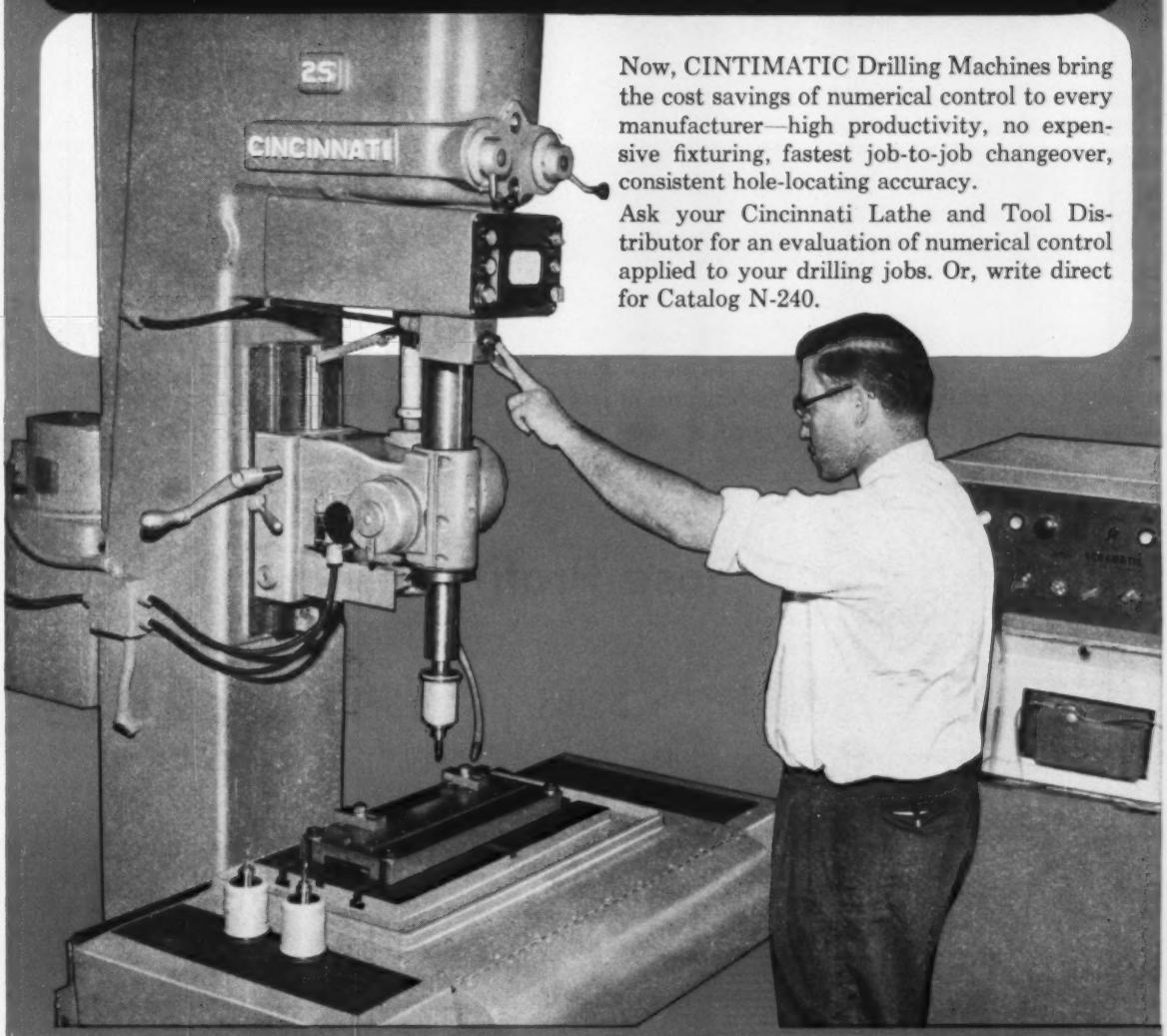

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CINTIMATIC Numerically Controlled Lathes and Drills

Profit Margins Will Shrink

Rollers say sales will be up this year, but profits will definitely shrink.

A solution to the problem of cost cutting must be found. If not, some mills may end up operating in the red.

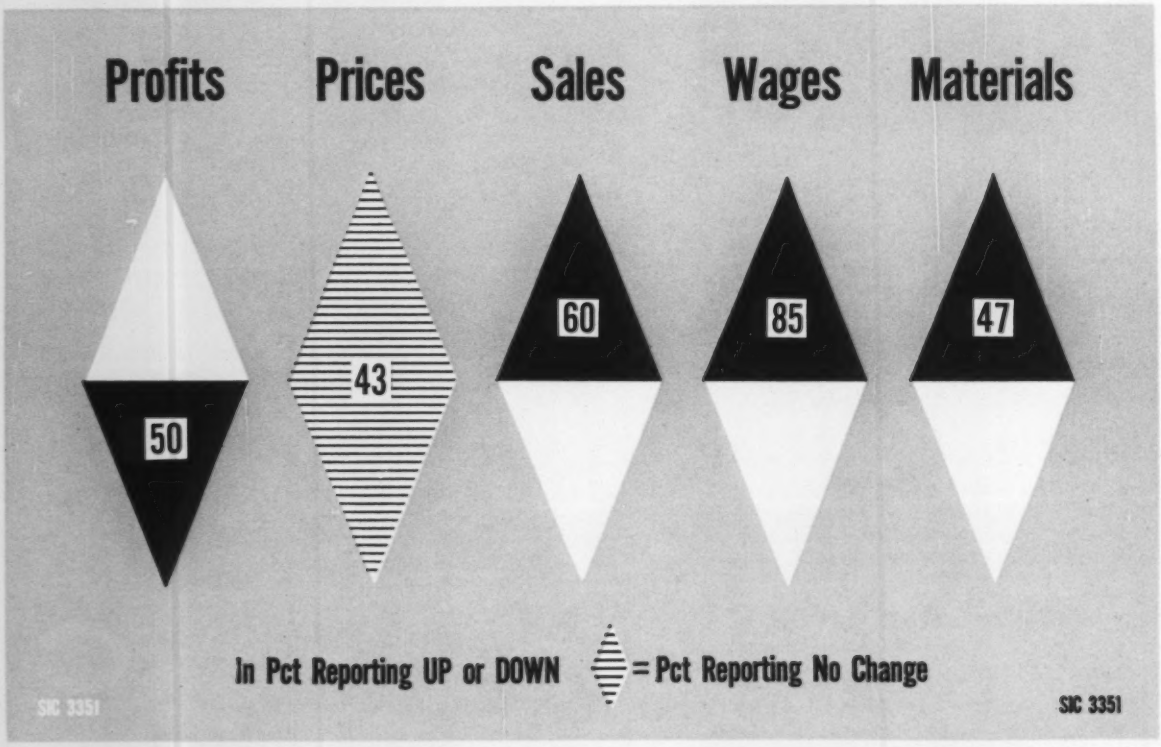
■ Copper and brass rolling and drawing mills will feel the tight squeeze on profit margins this year. While sales will go up, profits will be going down.

That's the opinion of nearly 60 pct of the respondents to an IRON AGE survey covering all plants in this industry that employ at least 50 production workers.

The survey also reveals that the selling price of products will remain level or drop. Forty-one pct of those responding look for prices to remain the same. Another 43 pct look for drops. Only 16 pct say there will be any increase in selling prices.

Costs Will Climb—At the same time, 85 pct respond that the labor costs will increase and the other 15 pct say there will be no change. A mere 16 pct look for the cost of materials to decline, while 47 pct predict it will increase and 37 pct

Increasing Costs Close Profit Margin



say it'll be the same this year.

Rollers initiated numerous technical advances in 1960 and several new marketing approaches were tried. Yet profits continue to shrink.

The industry labels the three most important factors affecting the squeeze on profit margins as: Price cutting, labor costs, and foreign competition. It seems to have no solution to the problem of price cutting. However, there are hopes that 1961 will result in a stronger tie between labor and productivity. The increase in labor costs, rollers note, is not matched by an increase in production.

No Tariff Relief—As far as foreign competition is concerned, the industry does not look for tariffs to be increased and, therefore, can see no relief this year. Executives do believe, however, that a rising trend to fight vigorously against imports may eventually pay off.

Rollers also feel that the government will have to take steps toward a greater depreciation allowance and a slash in the corporate tax structure before the profit margin squeeze will be eased.

SIC 3351

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 249	42 Pct	30 Pct
250 to 999	39 Pct	45 Pct
1000 and over	19 Pct	25 Pct

What Industry Executives Say

Increasing competition from steel and aluminum also has some brass men worried. The industry plans on promoting the durability of brass this year in an effort to regain some of the lost market.

Nevertheless, rollers still operate in the black. Their 1961 hopes are in finding a solution to the price cutting problem. If this can be found, profits may not fall as sharply as expected. If this is not found soon, brass mills could be using red ink before 1961 ends.

■ "Actually, our biggest loss of sales is due to substitution of other materials for brass. Our industry has lost valuable ground to the steel and aluminum industries. The only way to regain this market is to promote the durability of our product." Elmer R. Stafford, Jr., Comptroller, **New England Brass Co.,** Taunton, Mass.

"The troubles that have beset American industry price-wise are a direct result of the importing of cheap foreign products. Our com-

Continued

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pany has made a real effort to bring prices somewhere near those charged by our foreign competition. Obviously, profits have dwindled considerably.

"If our efforts to meet competition could be considered successful, we would certainly feel that our efforts were not in vain. On the contrary, foreign products are appearing in increased quantities and at prices far below what we are economically able to meet. If relief from this scourge is not forthcoming, American industry will find it necessary to do one of two things: Either transfer operations to foreign soil such as has already happened in many segments of our industry, or deteriorate to the point where a national emergency would find us at such a low level that it would take months to get back into full production." Joseph F. Murray, Vice President, **Reading Tube Corp.,** New York, N. Y.

"The biggest factor in the squeeze of profit margins is price cutting. This is due in part to foreign competition and to over capacity in a declining market. Brass rolling mills must get into other metals or new processes in order to survive." G. T. Hubbell, President, **Seymour Manufacturing Co.,** Seymour, Conn.

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— STANDARDIZATION PAYS —

Costs Will Climb, Prices Drop

Higher costs will plague the electric motor industry this year. But sales might go up slightly.

However, the industry expects profits and prices to fall. Price cutting and over-capacity are blamed for less profits.

▪ Plagued by higher costs, the electric motor industry hesitantly says that 1961 sales might go up. Profits and prices, however, will go down.

The IRON AGE recently surveyed all plants in this industry that employ at least 50 production workers. Replies represent 31 pct of the employment in this group.

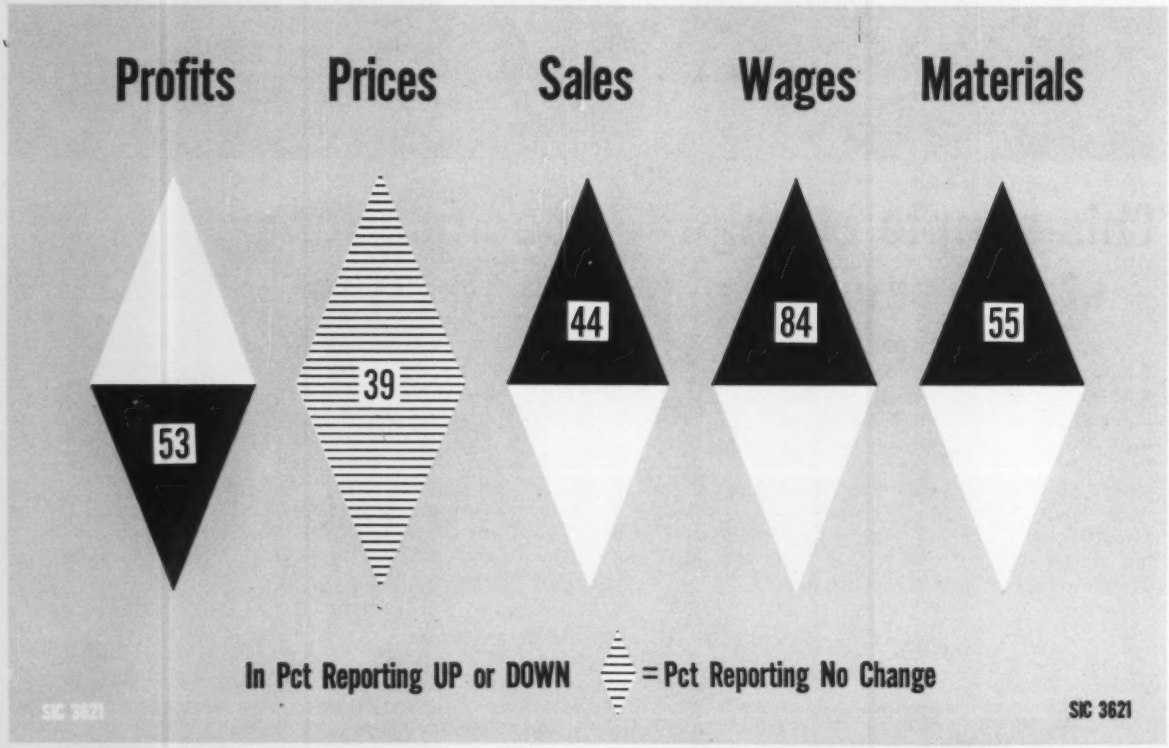
Only 44 pct of the respondents say sales will increase this year. The other 56 pct say the sales will remain stationary or decrease. On the other hand, a strong 75 pct look for profits to dwindle, or, at best, hold their own.

Prices Going Down—Contrary to many industries, manufacturers of electric motors say prices won't go up this year. Thirty-nine pct of those responding say they will drop, while another 39 pct look for prices to remain level.

But the cost problem isn't contrary to other industries. Eighty-four pct report an expected increase in labor costs and 55 pct say the price of materials is climbing.

A squeeze on profit margins within this industry is blamed pri-

Labor, Material Costs Squeeze Profit Margins



marily on price cutting. And over capacity is blamed for the price cutting. Most manufacturers say it is a cycle that can't be stopped until producers find a way to reduce fixed costs. This, they say, doesn't seem likely in 1961.

Profits Drop—Among the reasons for a general profit drop within the electric motor industry in 1960 were increased foreign competition coupled with a lack of domestic demand.

Statistics indicate, for example, the Japanese sold approximately 300,000 toy motors to U. S. buyers in May and another 250,000 rotisserie motors in October. Producers here say these motors are shipped into the United States and sold for less than American manufacturers can buy the material.

What's In The Future—The industry doesn't plan any drastic changes in products or marketing this year. Suppliers are again expected to stress the combining of electric products with driven equipment rather than just the sale of motors.

This industry is also pretty much tied to capital spending. And 1961 should be a better year in this respect than election-torn 1960. In fact, there are indications 1961 might find greater capital appropriations being promoted by industry in general.

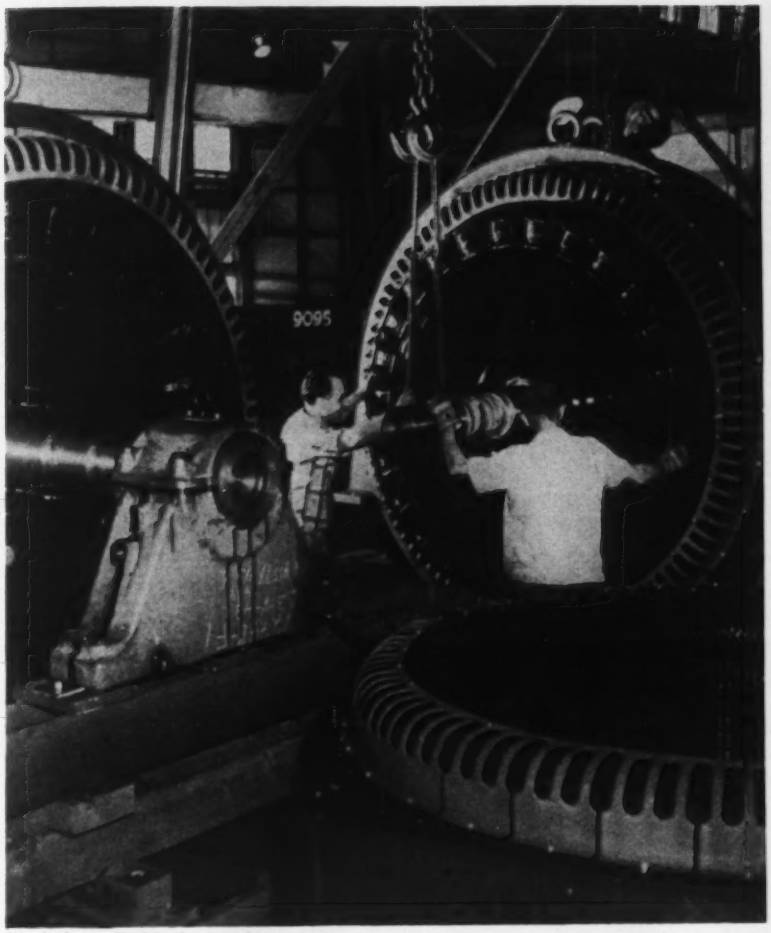
Most price cutting in 1960 came in the category of large motors—those with more than 500 hp. This trend is again expected this year. However, sales are expected to be predominantly on the increase among larger motors too.

Contrary to 1960, executives look for this year to start slowly and gain momentum. Last year's real activity came in the first half and slowed to a near halt by the fourth quarter.

SIC 3621

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	23 Pct	19 Pct
100 to 499	50 Pct	50 Pct
500 and over	27 Pct	31 Pct



Westinghouse Electric Corp.

What Industry Executives Say

"Price cutting is the real reason we're having a profit squeeze. The cause of this is great over capacity in the electrical machinery business and the apparent unwillingness of manufacturers to reduce fixed costs to reflect realistic market and individual enterprise potentials." G. J. Berry, President, **Electric Products Co.,** Cleveland, O.

"Increasing labor costs, both directly and through fringe benefits, is largely responsible for our present

Continued

profit squeeze. Also, there has been a decided shift in the types of goods purchased by the government as the result of technological advances in the aircraft industry. Some of these costs could be minimized if more capital were available to modernize production equipment. My main suggestion for reversing the trend is increased selling efforts to match the increased volume of production and to help compensate for additional cost burdens." A. S. Webeck, President, **Eicor, Inc.,** Oglesby, Ill.

"If material costs can be held down so that we can buy our materials at the same cost as foreign competition, then we do not fear the economic invasion of foreign competition as much as do some of our domestic competitors. We feel that the situation is serious, however, as most of our large material suppliers are constantly submitting to union pressure to raise labor rates. They fail to absorb this within their organization, but pass it on to the users. If this trend continues, they will price all small businesses out of the market." D. R. Wiggins, Secretary and Treasurer, **Consumer Industrial Products, Inc.,** Akron, O.

"There are too many in management who are not managing. There are too many in research who are not thinking. There are too many in sales who are not selling. And there are too many supervisors who do not supervise. Let us put our own house in order and then we can blame the other fellow." R. B. Lamkin, President, **Chandeyson Electric Co.,** St. Louis, Mo.

"Our profits are squeezed because of price cutting resulting from more productive capacity than sales. I feel 90 pct of all American manufacturers fail to realize the tremendous potential in export sales. If they would make the same proportionate expenditures of effort and money in developing export outlets as they do in domestic business, they would be amazed at the worthwhile results. It is a business which can be very profitable and, at the same time, level out the peaks and valleys of our own fluctuating business cycles." E. A. McCardell, President, **Win Power Manufacturing Co.,** E. Newton, Ia.

"We feel that our principal competition comes from domestic sources, and that profit margins are being squeezed by lower selling prices because of over capacity within the industry. Further decline in prices will result in additional red ink which is already showing in our industry. We hope that our material costs will become lower to help meet price reductions. Since materials are a very high percentage of our costs, additional cost-reductions are limited unless we get more help from our suppliers." W. M. Trigg, Manager, Motor & Gearing Dept., Buffalo Div., **Westinghouse Electric Corp.,** Buffalo, N. Y.

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Profit Potential Is Doubtful

An IRON AGE survey reveals that many producers of electric controls and switchgear look for profits to increase.

However, more see a decrease. Increased labor and material costs are getting the blame.

■ Producers of electric controls and switchgear vary on the question of profits during 1961.

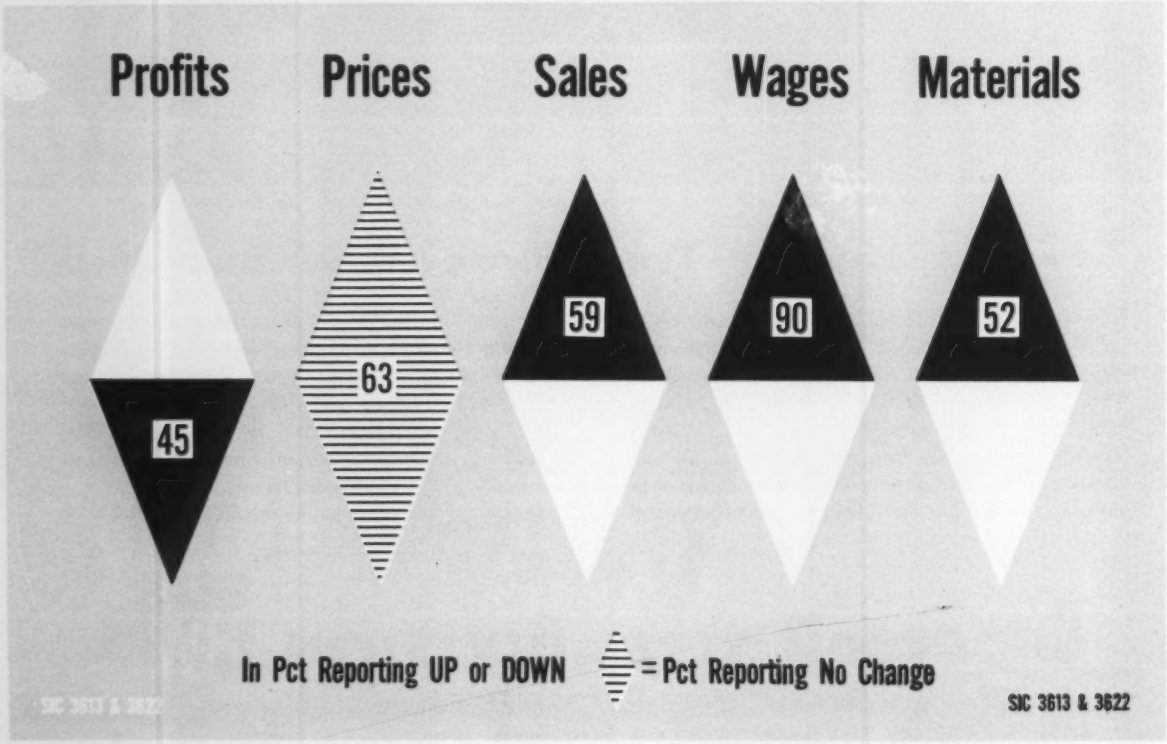
An IRON AGE survey reveals that 40 pct of the respondents think profits will go up. However, 45 pct look for a drop and 15 pct say that profits will remain the same.

The survey covered all plants in this industry that employ at least 50 production workers. Replies represent 37 pct of the employment in this group.

Sales Will Increase—The industry expects sales to definitely increase this year. Fifty-nine pct of those responding to the survey look for sales to climb. Only 12 pct say they will decrease. The selling price, many note, will probably remain at present levels.

The situation of increased sales and slackening profits points to increased labor and material costs. In fact, 90 pct say labor wages will

Which Way for Profits in 1961?



rise this year. Fifty-two pct say the cost of materials will be going up and only 3 pct say this cost will drop.

The comparatively young industry expects to continue to expand at a rapid pace. Yet it looks for even tougher competition this year. As in other industries, manufacturers say the greatest competition will come from overseas.

Full-Line Competitors — Then too, some producers say that mergers and acquisitions have resulted in full-line competitors. They claim independent companies are pressing a "break-even" philosophy that leads to direct price cutting. This, they say, can only be halted if these divisions begin thinking more about profits.

The industry also blames over capacity for the present squeeze on profit margins. It claims the volume of business available doesn't warrant present production levels.

And then, on top of everything else, it says, buyers have adopted the attitude that "if it's cheap enough, it's good enough." In other words, manufacturers claim the market has not become quality conscious. This is what makes foreign competition the toughest.

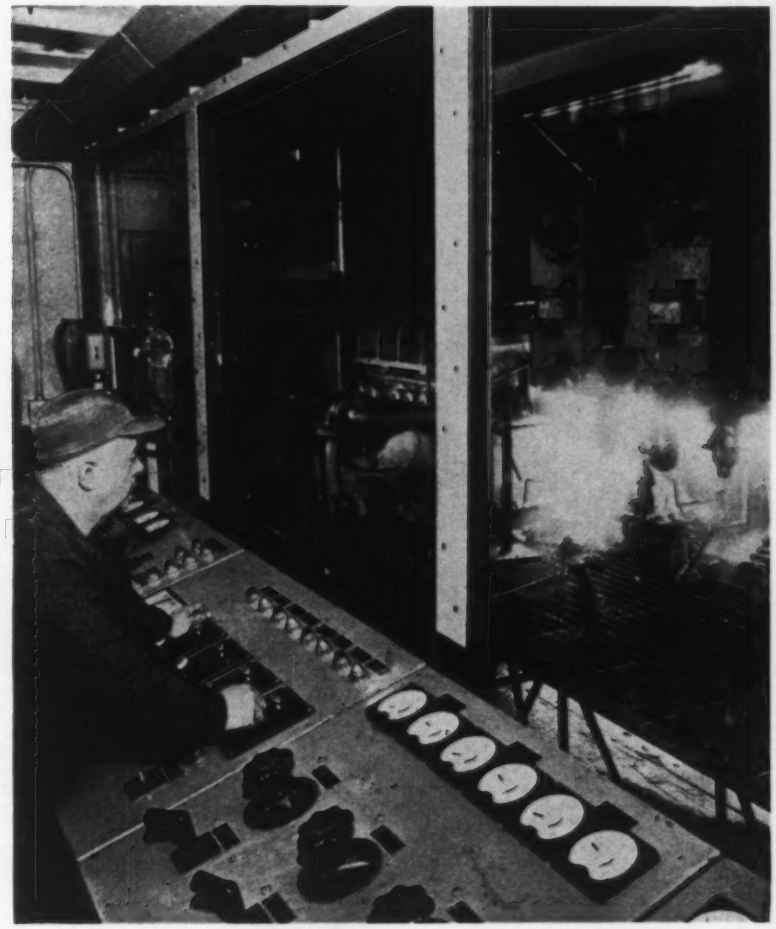
Continued Trends — Producers aren't expected to bring out many new products under the present industry status. However, they believe there is still a definite trend toward electronic or "static" controls. This means a move away from electro-magnets and increased use of transistors and diodes.

Of course, the makers of electromagnetic components look upon such talk unfavorably.

SIC 3613 & 3622

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	28 Pct	26 Pct
100 to 499	55 Pct	53 Pct
500 and over	17 Pct	21 Pct



Jones & Laughlin Steel Corp.

What Industry Executives Say

"Mergers and acquisitions, resulting in 'full line' competitors, do the most to cause price depreciation. The solution to the problem is to make each division develop a profit." John M. Townsend, President, **Continental Electric Equipment Co.,** Cincinnati.

"The small businesses could do a better job for our gross national income if we could get a better break on taxes and the modernization of production equipment." W. H. Carrigan, Vice President and

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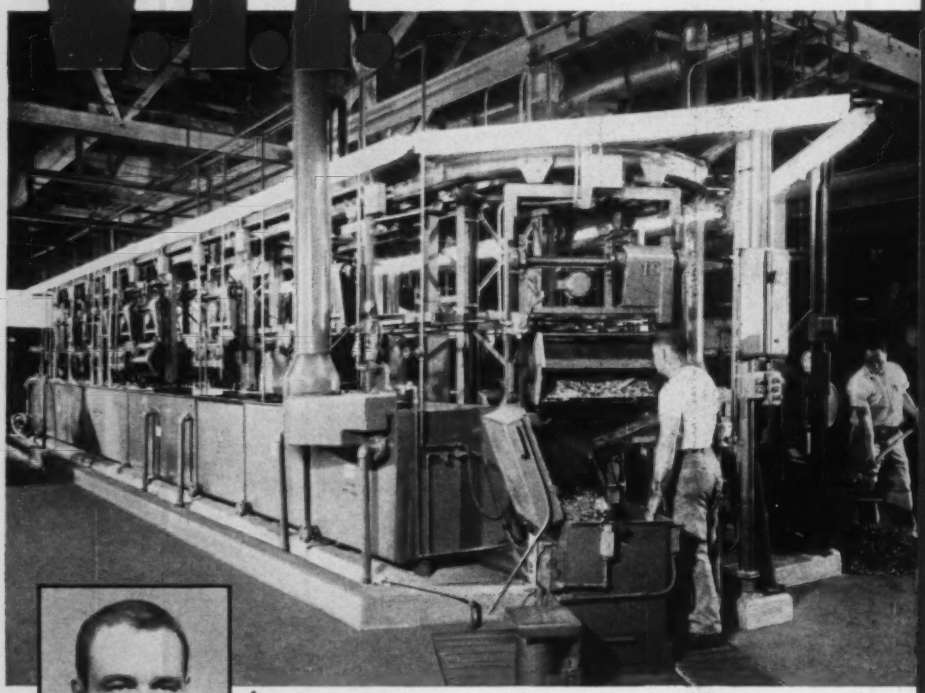

*Variable Integrated Processing steps-up production, improves plating efficiency for Chrome-Rite Company

Chrome-Rite Company, Chicago, Illinois, a large job plating shop, recently selected and installed a Udylite V.I.P. Automatic Barrel Plating Machine to replace a manual line for zinc plating bulk parts.

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General Manager, **Kirkhoff Manufacturing Co.,** Grand Rapids.

"The biggest reason for profit squeezes is cost cutting. This stems from overcapacity and limited demand. The threat of additional foreign competition will prevent prices from rising unless there are some unusual developments. Price leadership, exercised by one or more of the major producers, would tend to stabilize the market for switchgear and power circuit breakers. They must set the example, however, and be willing to tolerate a fair proportion of the available business going to smaller competitors." John M. Hottenstein, Division Manager, **ITE Circuit Breaker Co.,** Los Angeles.

"Basic over capacity within the industry for the amount of business available is chiefly responsible for the present profit squeeze." W. B. Mann, President, **Wolfe & Mann Manufacturing Co.,** Baltimore.

"The curse of our industry is price cutting. All I know to try is to continue developing new and better engineered products and sell them on their merits rather than just price. The electrical industry looks too much at price and not enough at value. What is cheap?" P. W. Reed, President, **Monarch Electric Corp.,** Jamestown, N. Y.

"Much modernizing of products, production and thinking is needed. Price cutting by the big companies seems terrific. We'll know more later." G. J. Hales, President, **Leonard Electric Manufacturing Co.,** Cleveland.

"Profit margins have been narrowed primarily because of intense price competition. This fact, coupled with the rising costs of labor and materials, cuts heavily into profits. Greater volume could withstand the price-cost squeeze by cutting fixed unit costs. However, demand has been generally soft in the industry and volume has been static or depressed." Thomas Morgan, Assistant Secretary, **International Register Co.,** Chicago.

"A great many people got into the control and relay business on military orders and are now trying to stay in the business on commercial work and/or a reduced volume of military requirements. Many of them did not, and do not now, have an adequate sales and distribution system. Their main recourse is price cutting." John J. Rowell, Vice President, **Guardian Electric Manufacturing Co.,** Chicago.

"Price cutting and labor costs are our most difficult problems. Unless our competitors realize that price cutting is harmful to all, I don't see what can be done to change the current situation. To a large extent, price cutting is due to over capacity and only a boom would take up the slack. There is little indication of that." Arthur A. Berard, President, **Ward Leonard Electric Co.,** Mt. Vernon, N. Y.

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R-359-136B

Manufacturers Lack Optimism

This isn't a promising year—profit wise—for the fastener industry. At least that's what an IRON AGE survey reveals.

Sales will go up, but profits are expected to decline.

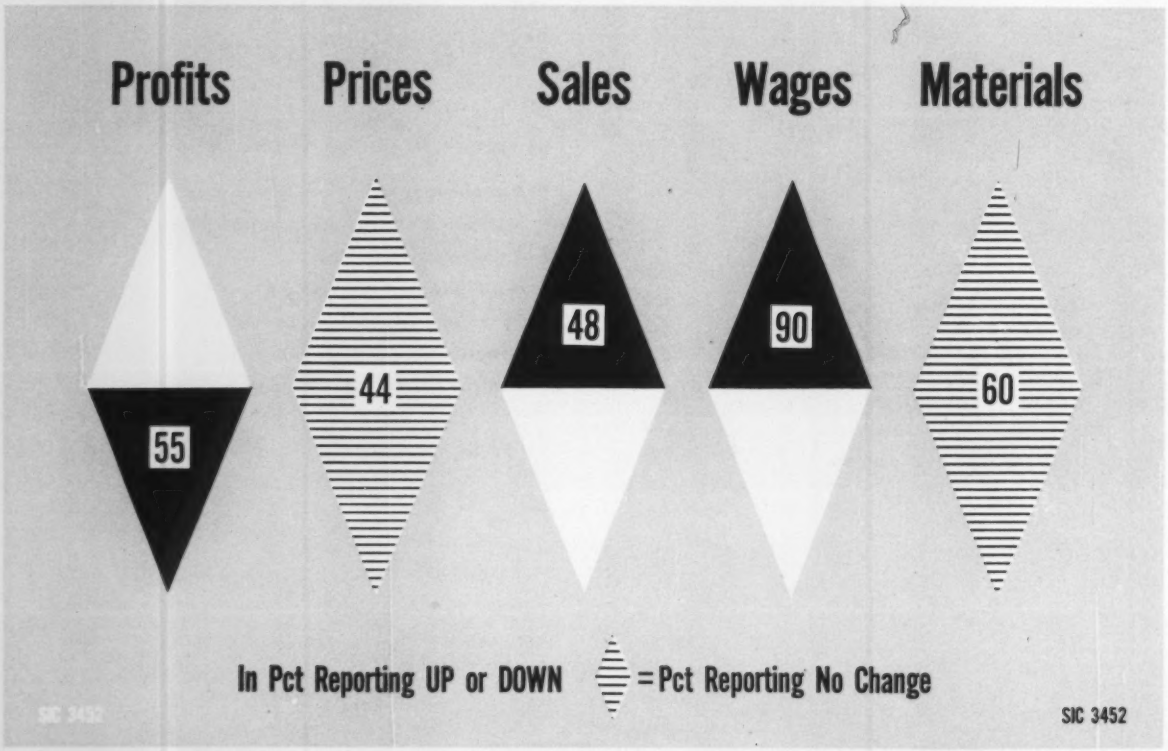
■ The fastener industry is far from optimistic this year.

A recent IRON AGE survey reveals the 1961 pattern for the industry: Sales will probably increase, the selling price should remain the same, labor costs will rise, the cost of materials will remain stationary or increase slightly, and profits will shrink.

The survey covered all plants in this industry that employ at least 50 production workers. Replies represent 49 pct of the employment in this group.

The Sales Picture—A total of 48 pct of the survey's respondents say sales will be higher this year. Twenty-four pct expect them to drop and 28 pct say there will be no change. There is quite a bit of disagreement on the predictions for the selling price of equipment in 1961. Most producers, 44 pct, say there will be no change in prices this year. Yet, 31 pct look for

Here's the Story of Shrinking Profits



Industrial Fasteners Institute

prices to go lower; 25 pct say they will rise.

Fastener makers fully expect the squeeze on profit margins to become even tighter before this year is out. Ninety pct of those answering the survey feel the cost of labor will rise. However, while most industries look for considerable jumps in material costs, fastener producers say there should be no change in this area.

At least that's the opinion of 60 pct. Yet 59 pct expect increases in material costs. Only 1 pct look for this price to fall.

Profits Down—Bearing this in mind, 55 pct of the manufacturers note 1961 profits will decline. Eighteen pct look for no change and 27 pct feel profits may rise this year.

Many producers express the opinion that price cutting is the primary reason for the decline in profits.

But, others say, foreign competition has brought over capacity into focus and this is definitely a cause. Of course, many factors such as foreign competition and increased production costs are actually responsible for the price cutting. The industry is planning an all-out campaign this year for short-term tariff protection.

At the beginning of 1960, producers looked for profits to rise. However, the effect of imports was underestimated and the year didn't turn out nearly as well as expected. Now the industry is bracing itself for another year of tough "outside" competition.

SIC 3452

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	40 Pct	36 Pct
100 to 249	34 Pct	39 Pct
250 and over	26 Pct	25 Pct

What Industry Executives Say

"Price cutting is as bad as I've seen it in the past 20 years. In a market where low prices will not increase the total consumption of a product, it is foolish to try and get more than your share of the business. Nobody has a monopoly on the low price." H. Thomas Hallowell, Jr., President, **Standard Pressed Steel Co.,** Jenkintown, Pa.

"Stagnation plays a major role in the squeeze on profit margins in this industry. Reversing the trend demands a dispassionate evaluation

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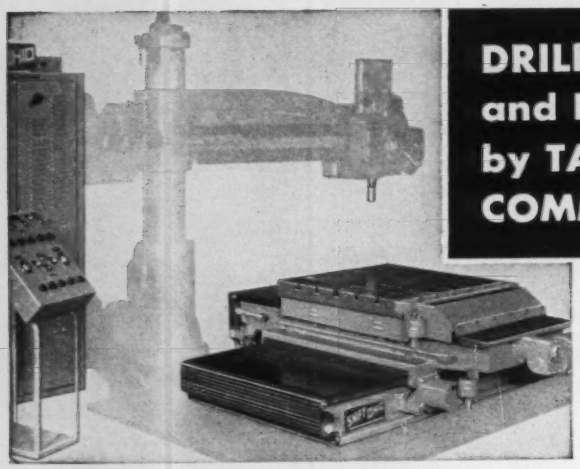

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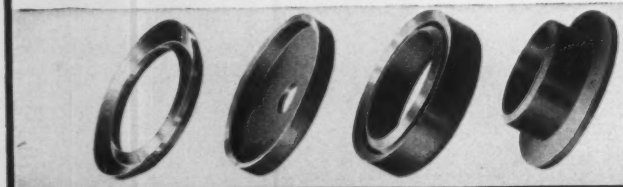

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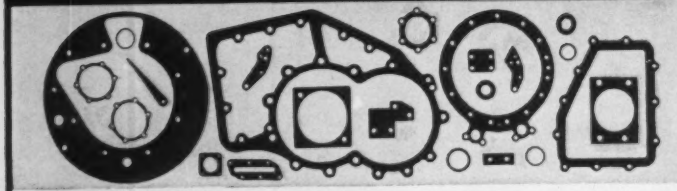

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Teflon • Viton "A" • Mylar, etc.

of each company's shortcomings to establish a realistic company purpose." James E. Jolliff, Controller, **Judson L. Thomson Co.,** Waltham, Mass.

"The item most responsible for the squeeze on profit margins has been a steady increase in labor costs. Like many others in our industry, we have been affected by foreign competition and price cutting from our fringe competitors. However, labor costs represent the greatest problem. And we do not anticipate any change in the labor climate for at least the next four years." Raymond F. Duffey, Vice President Sales, **Tubular Rivet and Stud Co.,** Wollaston, Mass.

"Conditions can scarcely get worse in this industry, and the industry is too basic to disappear. Price cutting is the worst single factor in the fastener industry and foreign competition has a bearing on this element. Labor costs are also a serious problem, but must be lived with and can be controlled to a considerable degree by mechanization. Of course, it is this same mechanization which has produced over capacity which, in turn, is the most important reason for price cutting." Herbert E. Smith, Jr., President, **Vulcan Rivet & Bolt Corp.,** Birmingham, Ala.

"We feel that the greatest cause of reduced profits in our industry is the price cutting by manufacturers who are not living up to specifications. This has created considerable trouble in the aircraft and missile industry because it has affected reliability. Indications are, however, that the industry is policing itself. We feel there is a possibility of a trend reversal in the year to come." K. R. Brooks, Vice President, **Screw Corp. of California,** City of Industry, Calif.

"A quota should be placed on imports." B. J. Sachbein, President, **Hercules Fastener Corp.,** Chicago.

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It is unsurpassed in quality, consistently true to specifications, and absolutely uniform in gauge. Hundreds of manufacturers attest to this fact... the qualities that they *pay* for — they *get* in Roebling high-carbon wire. The length of our relationship with customers proves it.

We'll be glad to show you what we mean. For information on superior high-carbon wire or cold rolled strip, write Roebling's, Wire and Cold Rolled Steel Products Division, Trenton 2, New Jersey.

This lightweight "No Charge" spool is typical of Roebling's modern packaging methods that save customers time and money.

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- More dependability
- Freedom of maintenance and leakage
- Simpler electric controls
- Simpler hydraulic control
- More accuracy in level control
- More accuracy in air bending
- More operating convenience
- Greater visibility
- More rigidity in cylinder construction
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VERSATILE COMBINATION PRESS BRAKE AND SHEAR

With the unique PACIFIC shearing attachment, General Electric Company, Evandale, Ohio, shears heavy plate and forms sheet metal parts on its PACIFIC press brake. In cutting ½" to 1" plate, the PACIFIC minimizes slow burning, increases shearing capacity of the plant and equals conventional shears in high speed cutting. Accuracy of .060" to .090" over 6 feet of shear length is provided in cutting ⅜" to ¾" stainless and mild steel up to 1" thick. Shearing with a cushioned, shockless hydraulic stroke, attachment is still cutting on original knife edge after 6 months of use. Operating half the time as a press brake, the PACIFIC forms mild and cold rolled steel, stainless and inconel parts for jet engines. Horn on left end of ram permits forming while shearing attachment is in place. Jack-type conveyor table operating on trolley tracks on floor is contemplated for rapid installation and removal of shearing attachment.

*THIS INVESTMENT ENABLED PACIFIC TO INTRODUCE:

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- Cushioned punching (1949)
- Precision depth control to repeat accuracy within .001" (1951)
- Manual turret stroke controls for progressive bending (1952)
- Selective anti-whip speeds to eliminate reverse bends (1952)
- Tandem operation of press brakes for forming pieces 40 ft. or longer (1953)
- Tonnage control to protect light dies in heavy press (1953)
- Multiple hydraulic cushion cylinders for deep drawing (1954)
- Overhead integral power unit for increased accuracy (1955)
- Cylinder ram guides for increased rigidity (1956)
- Shearing attachment for shearing heavy plate on press brake (1958)
- Pipeless stacking of valves to eliminate pipe breakage and leakage (1959)
- Shockless hydraulic valving to eliminate cause of leakage (1959)

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"We suggest that some of the larger producers raise prices and ignore foreign competition. The ability to render service and quick deliveries should offset foreign competition." P. Champion, President, **Champion Rivet Co.,** Cleveland.

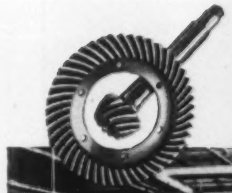
"Imports are killing us. I propose that we put closer and more stringent controls on tariffs." R. C. Sellin, Vice President & Treasurer, **Midland Screw Corp.,** Chicago.

"Price cutting to meet real or imagined foreign competition, plus some panicky sales management have caused many prices to fall below foreign competition. The outlook for fastener manufacturers is far from encouraging." John A. MacLean, Jr., President, **MacLean-Fogg Lock Nut Co.,** Chicago.

"Demoralization of the scrap market is the principal cause of the squeeze on profit margins. Mills must adopt a pricing policy for washer stock which rises and falls with the scrap market. Constant increase in labor cost and taxes, and the unrealistic depreciation allowances on capital equipment are also factors." Lawson Adams, Executive Vice President, **Wrought Washer Manufacturing Co.,** Milwaukee.

"I believe foreign competition to be the major cause of our inability to show sufficient profits and modernize production. Governmental help is not forthcoming and not desirous. The best way to combat imports is to wage a vigorous campaign to 'buy American.'" Otto G. Lobatz, Vice President, **Revere Screw & Rivet Corp.,** Chicago.

"Price cutting due to over capacity and foreign competition, labor costs, and the inability to modernize production equipment because of high taxes and unrealistic depreciation laws are the reasons for a squeeze on profit margins." R. E. Nelson, Controller, **Central Screw Co.,** Chicago.



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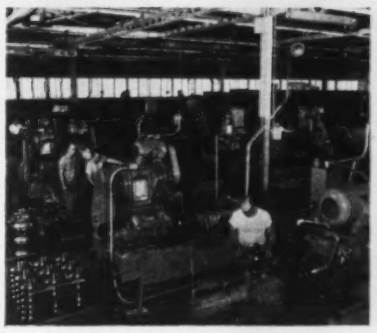

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Slump Hits Gray Iron Founders

Price cutting and spiraling labor costs carry into new year. Little relief is expected by industry.

Most executives feel that only a turn in general business will help.

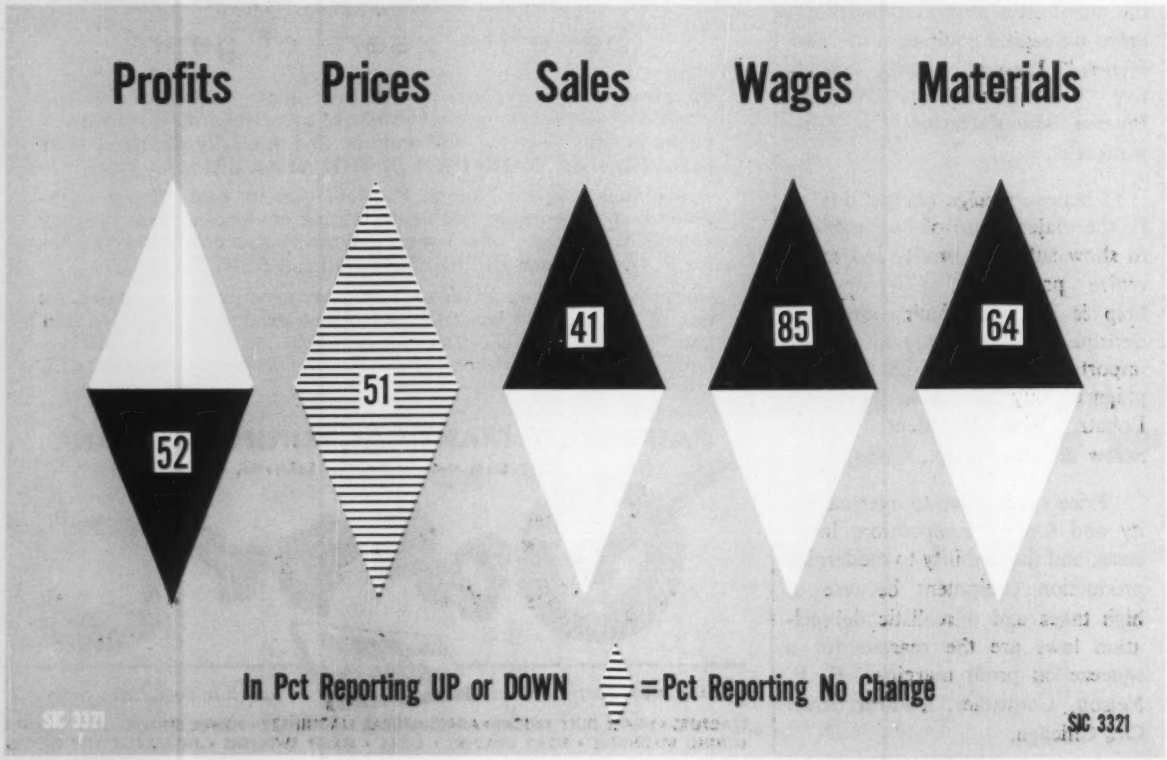
■ The past year was one of intense competition and widespread price cutting in the gray iron foundry business. Little relief from this situation is expected by industry men in 1961.

Almost six out of ten industry men surveyed by The IRON AGE expect sales this year to be the same or lower than in 1960. Seven out of ten say selling prices will be the same or lower than last year. And a whopping 85 pct of these men say wages will go higher. Most predict higher material costs.

Tough Cycle — The situation in the industry is one that compounds itself. Wages and material costs exert stiff upward pressures but prices are pegged by a buyers' market and by imports. What is needed is greater shop mechanization. But depreciation taxes and lowered profits rob companies of the money to buy new equipment. There will be tough sledding in 1961, particularly for the smaller companies.

Many industry men see no end to price cutting until business makes

In View: Costs Up, Sales and Profits Static



a turn for the better. Industry veterans say price cutting has been an off-and-on occurrence in the business for more than fifty years. They say that when business is slow, price cutting starts, and doesn't stop until business is good again.

High Wage Costs — Spiraling wage costs have had a particularly crippling effect on founders. One industry spokesman claims that total labor costs run close to 45 pct of sales.

The effect of labor cost increases is especially tough on the many small founders that make up the bulk of the industry. Heads of small companies point out that when faced with labor demands, the small company is always required to meet a so-called national pattern. And this pattern is based on how big companies have settled.

Mechanization — Foundry men claim that mechanization is one answer to rising labor costs. But they feel they will be strapped in doing much about this in 1961. Little in profits has been brought into the new year from the old. Most founders feel that depreciation taxes are not realistic, especially in the face of increasing foreign competition.

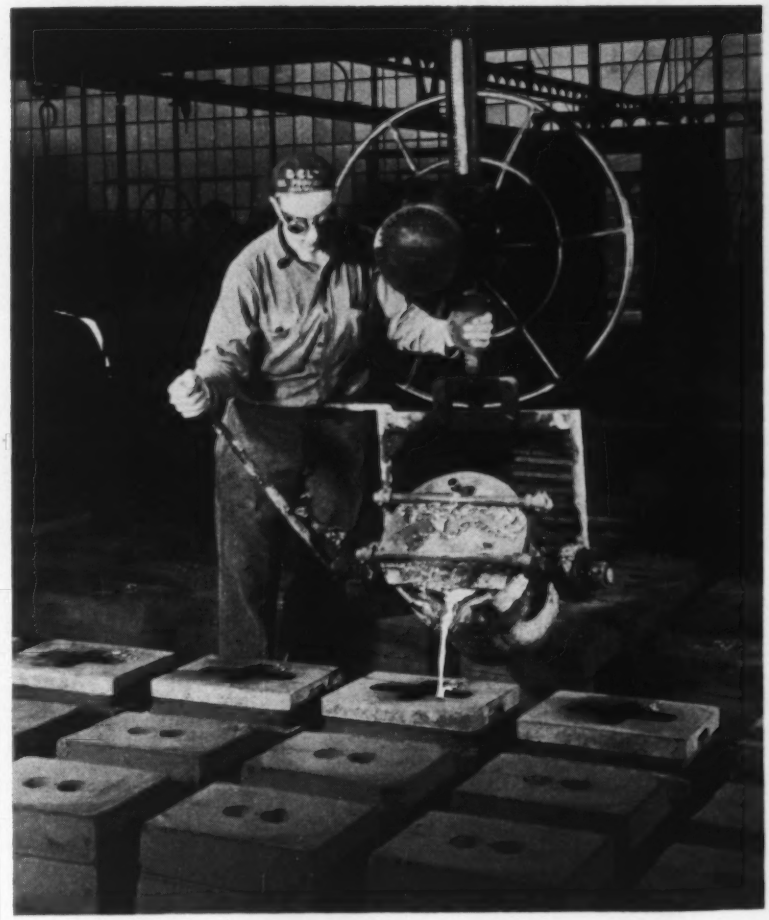
Another area of competition that is expected to stiffen further in 1961 is that from alternate materials. Founders must find ways to compete aggressively with steel, plastics, and aluminum, particularly.

Bright Note—One founder who is looking to increased sales and profits in 1961 is meeting foreign competition head-on. This foundry has 167 foreign foundry licensees.

SIC 3321

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
100 to 249	68 Pct	60 Pct
250 and over	32 Pct	40 Pct



Gray Iron Founders Society, Inc.

What Industry Executives Say

"Most of our troubles are due to poor overall business conditions. Also, inroads have been made by substitutions of other materials for gray iron castings—fabrications in steel, plastics, and aluminum." H. L. DeSantis, Secretary, **Ace Foundry, Ltd.,** Huntington Park, Calif.

"Price cutting is at the heart of our industry trouble. This has been the history of the foundry business for fifty years. This I know from actual experience. When business is down, price cutting starts and

Continued

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doesn't stop until business is good again." M. B. McKee, President, **Gartland Haswell Foundry Co.,** Sidney, O.

"Foundry industry profits have been poor for some time, but 1958-60 was really adverse. This was primarily due to increased competition, not only in the industry, but with competing materials. The industry's inability to modernize equipment has been a severe handicap." R. S. Thompson, President, **H. P. Deuscher Co.,** Hamilton, O.

"We have no fear of foreign rough-casting competition. We have 167 foreign foundry licensees. The answer to profits is: Quality products, good merchandising, and materials handling through mechanization to reduce labor costs." H. H. Kessler, President, **Sorbo-Cast Corp.,** New Brunswick, N. J.

"Taxes are absorbing too much of our earnings. This reduces funds available for modernization." J. D. Capron, President, **Glamorgan Pipe Foundry Co.,** Lynchburg, Va.

"The foundry industry has been especially hard hit by wage increases. In the foundry group you will find that the total labor cost runs close to 45 pct of the sales dollar. This makes spiraling labor costs a more important element in this business than in many others." L. N. Essex, President, **Golden Foundry Co., Inc.,** Columbus, Ind.

"The most important causes of the conditions in the foundry industry today are price cutting, taxes, and constantly increasing labor costs. We believe the corporate tax rate structure should be placed on a minimum of four staggered bases —10 pct on the first $25,000; 20 pct on the next $50,000; 30 pct on the next $100,000; and 50 pct on all above. The reason for this is that the small company cannot accumulate earnings after taxes in order to buy the necessary equipment to keep pace with competition, or to expand. We also believe there must be closer control of the demands of labor unions." J. E. Britton, President, **Urick Foundry Co.,** Erie, Pa.

"We are concerned with the flood of machinery, electrical motors, cars and other finished metal goods produced at $.55 to $1.08 per hour labor rate versus our much higher rates." L. M. Currie, Vice President, **H. C. MacCaulay Foundry Co.,** Berkeley, Calif.

"Increased labor costs are not only affecting our own operations, but also the products of our suppliers. This, in turn, is putting our product at a distinct disadvantage in relation to foreign competition. We must find means of educating our labor and show them the pitfalls of their inflationary ways. It is our only means of regaining our share of the market." H. J. Sprecken, Jr., President, **Sturgis Foundry Corp.,** Sturgis, Mich.

"A 'Buy American' campaign already started by the government would certainly help in our present situation. Tariff help seems impossible, but quotas on all metals, and especially metalworking machinery, are vital. As for price cutting, it will not change as long as we have 40 pct idle capacity in our industry. Until a national pattern of 'hold the line' can be adopted, the small manufacturer is helpless to resist the trend." W. Z. Taylor, President, **Taylor & Co., Inc.,** Brooklyn, N. Y.

"Lunch hour or not, stop that clowning.

TOUGH DIET FOR TIN PLATE

Canned fruit salads may be easy on fashion-trim figures but they're murder on containers. To withstand biting food acids, the tin plate must be securely bonded to the steel . . . a trick that calls for thorough cleaning of the steel before plating. One of the latest Pennsalt cleaners does the job in superior fashion. In fact, nine out of ten cans produced today get their start with Pennsalt tin mill cleaners.

The first job-engineered tin mill cleaners were pioneered by Pennsalt some 23 years ago. Pennsalt has maintained its leadership by keeping pace with changes in plating, rolling and annealing techniques . . . and today offers a complete line of cleaners to meet modern tin mill requirements. The same chemical ingenuity and application experience are key ingredients in the broad line of chemicals and equipment which Pennsalt supplies to the metalworking industry. Write or call us for a consultation on your own finishing problem.

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Heat Treat Market Is Slow

Profit squeeze is felt by heat treating equipment men. No relief is expected in 1961 unless general business turns for the better.

Sales are forecast to go up, but so are costs.

■ Heat treating equipment makers differ widely on the 1961 outlook for sales, profits and selling prices. But they are in almost total agreement on the direction of labor and material costs—up.

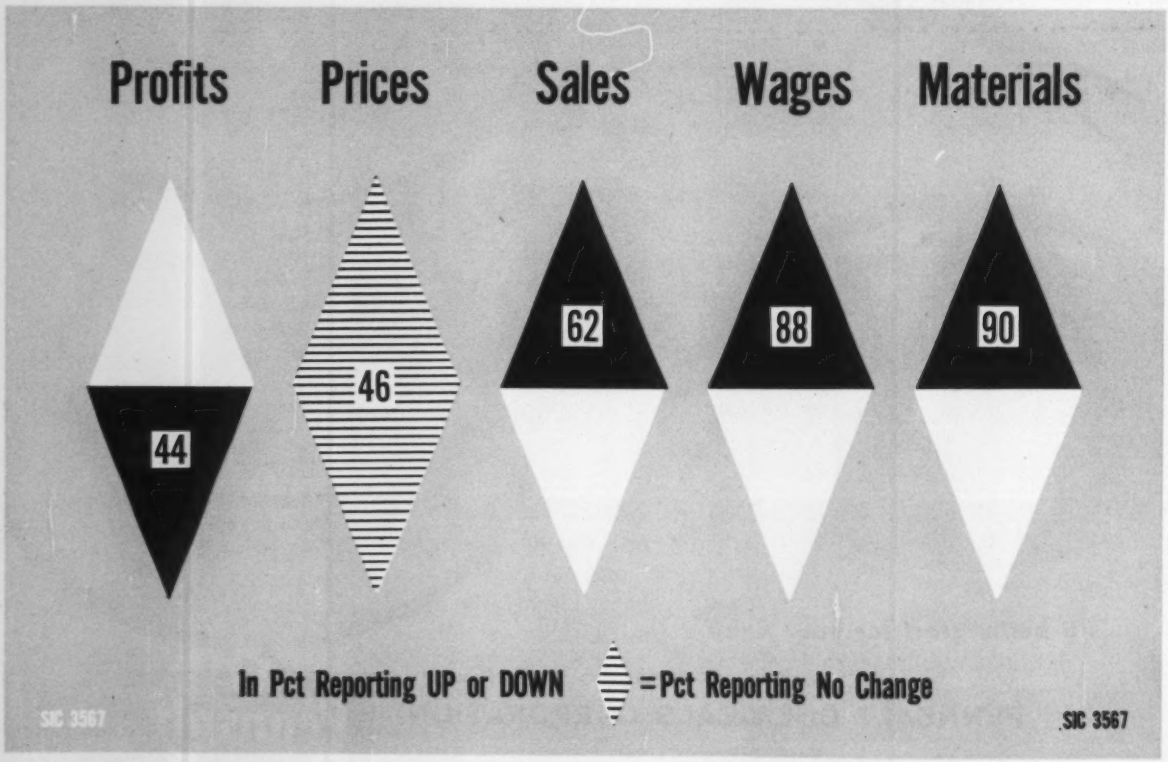
This is the principal conclusion of The IRON AGE survey of heat treating equipment makers. The survey covered all plants in the industry that employ at least 50 production workers. Replies represented 56 pct of the employment in this group.

Customers Squeezed — Industry executives cite the squeeze of increased costs and an inability to pass on these costs. Customers of the industry are in the same boat and cannot accept higher prices. This situation has resulted in a profit squeeze.

And it looks as though the profit squeeze will extend into 1961. More than 60 pct of the executives surveyed expect sales to be higher in 1961. But more than 60 pct also believe selling prices will be the same or lower in the new year.

Any relief that may be expected from increased sales seems further

Few Expect Profit Improvement in 1961



doomed when the cost picture is viewed. About nine out of ten heat treating equipment men expect wages and material costs to rise in 1961.

Engineering Costs—Other costs are up, and will probably go higher. One executive surveyed pointed out that direct engineering costs rose about 10 pct in 1960 over the previous year.

In the face of competitive industry conditions in 1960, few charges of price cutting have been sounded by surveyed executives. Idle capacity and rising costs have caused undeniable scrambling for orders. But price wars, as such, seem minimal. There is no sign that price cutting will be any more severe in the new year.

Describing what is wrong is easier than finding a solution. So it is that heat treating equipment men are articulate on industry troubles but hesitant, unsure, or even skeptical about solutions.

Solutions—Here are some of the areas of solutions mentioned by equipment makers: Increased research, new products, automation, diversification, and closer cost analysis.

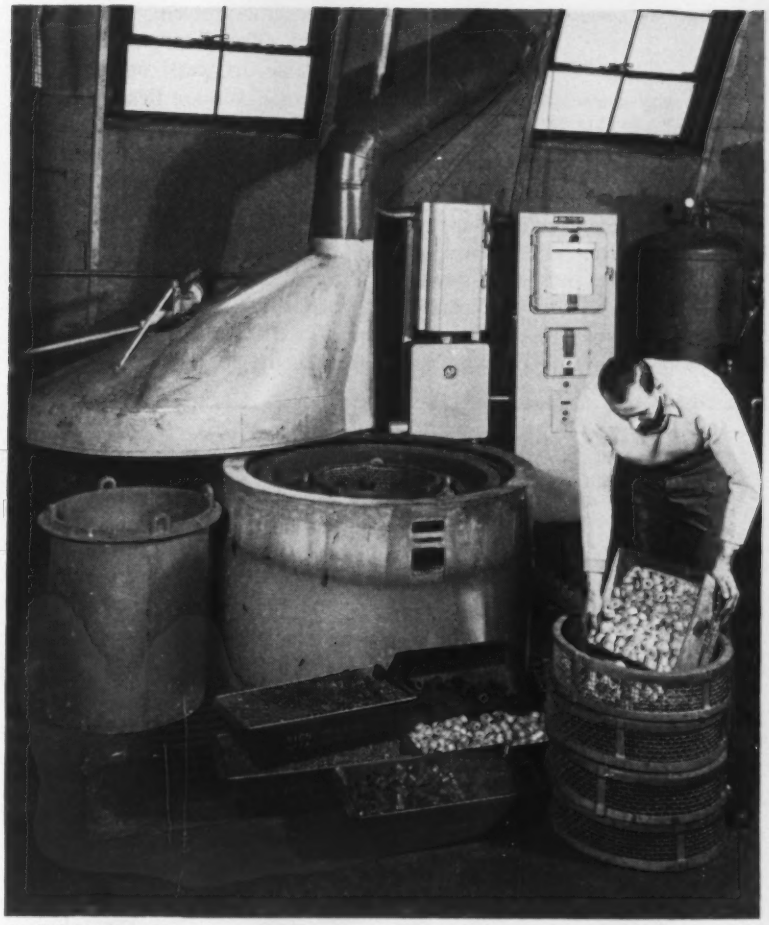
In a practical sense, many of these solutions are known but not fully pursued. The profit squeeze has left capital funds in short supply.

Equipment makers are watching 1961 for a turn for the better in general business. If the mid-year upturn so freely predicted by economists does not come off, then equipment makers may face a period even tougher than in 1960. They enter the year with no cushion and little reserves.

SIC 3567

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	56 Pct	64 Pct
100 and over	44 Pct	36 Pct



Leeds & Northrup Co.

What Industry Executives Say

■ "I don't think there is anything wrong with profit margins that good common sense won't cure. Common sense and the right attitude help us. We don't cut prices. If others do, making a profit is their problem, not ours. As far as taxes go, they will always be with us. If they are considered the same as other costs, they can be tolerated. Foreign competition is not a problem to us. And as far as modernization goes, this is chiefly a money matter. This has not been an insurmountable prob-

Continued

lem for any successful, profitable company." T. H. Wickwire, III, President, **Trent, Inc.,** Philadelphia, Pa.

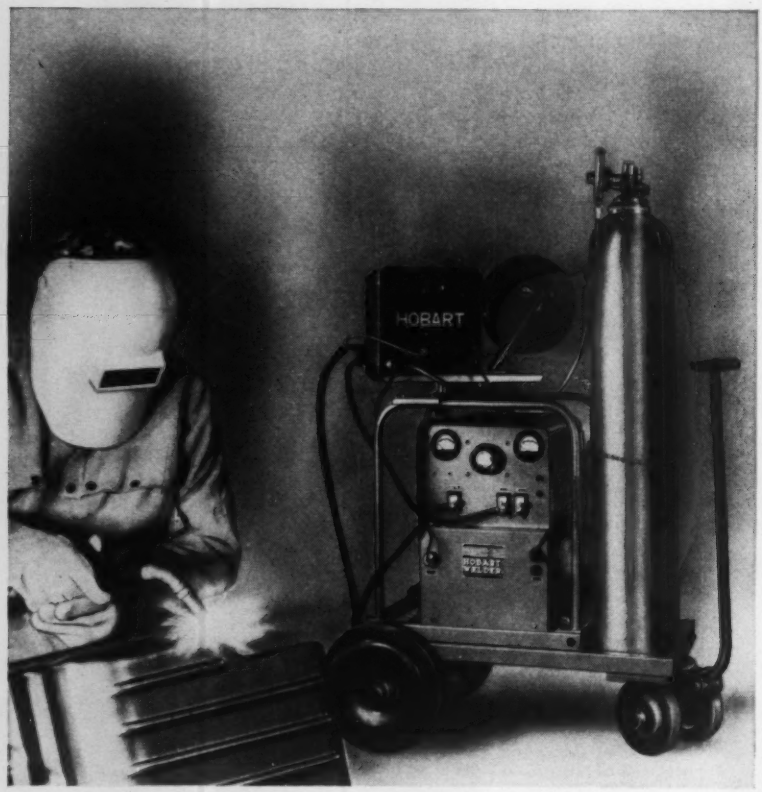
"The squeeze on profits seems to be getting worse. This seems to stem from the fact that there is considerably more productive capacity than sales. This has been true for the past few years. And with this is a general problem: Prices have softened. Therefore, we have not been able to pass on increased labor costs. We are licking this by diversification and new products. Because of this, we will sell more in 1961, and make more money, but with a different product mix." W. E. Sauter, General Manager, **C. I. Hayes, Inc.,** Cranston, R. I.

"Actually, several factors combine to effect the tight squeeze on profit margins in the special heat processing equipment field. Needed modernization is held up because of our customers' competitive position with regard to price cutting, taxes, labor costs and foreign competition. This reflects a similar image in the 'tight' original equipment field sales." B. A. Russell, President, **Drying Systems, Inc.,** Chicago, Ill.

"The best way to reverse the profit squeeze trend in this industry lies in research toward more efficient, higher production equipment." C. F. Olmstead, President & Treasurer, **Lee Wilson Engineering Co.,** Cleveland, O.

"The trouble in our industry? Price cutting or lack of knowledge of what actual costs are so that sales prices are totally unrealistic. The cure? I wish I knew." C. B. Kentnor, Jr., President, **W. S. Rockwell Co.,** Fairfield, Conn.

"Important causes of the profit squeeze in this industry are as follows: Direct engineering costs are up about 10 pct over 1959. Direct labor costs are up approximately 4 to 5 pct. And material costs are up about 3 to 4 pct on the average. We are a small company, and working capital problems prevent us from buying all the desired equipment for more efficient operations." C. R. Chambers, General Manager, **Vacuum Furnace Div.,** Concord, N. H.



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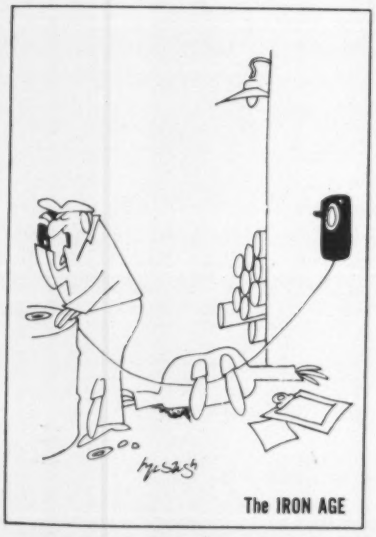

"I'd better run, that was the boss."

Did you know this about foreign competition?

Foreign manufacturers who are actively competing for markets in the U. S. and throughout the world have enjoyed some real cost advantages in the past. Today they are faced with labor shortages and rising labor costs which are whittling down their profits.

What are they doing to solve these problems? They are turning to the one proved answer that exists today—automated special machinery which CONTROLS production costs and gives them back their competitive edge.

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Industrial Truck Prices Soft

Most industry executives think sales will rise, or at least hold own, in 1961. But more price cutting may keep profits at 1960 level.

Standard lines are hardest hit by price slashes.

■ Industry executives expect sales to stay at 1960 levels or better during the new year. Most think profits will be lower or about the same as last year. One-third feel selling prices will run above last year, but half feel there will be no changes in these prices.

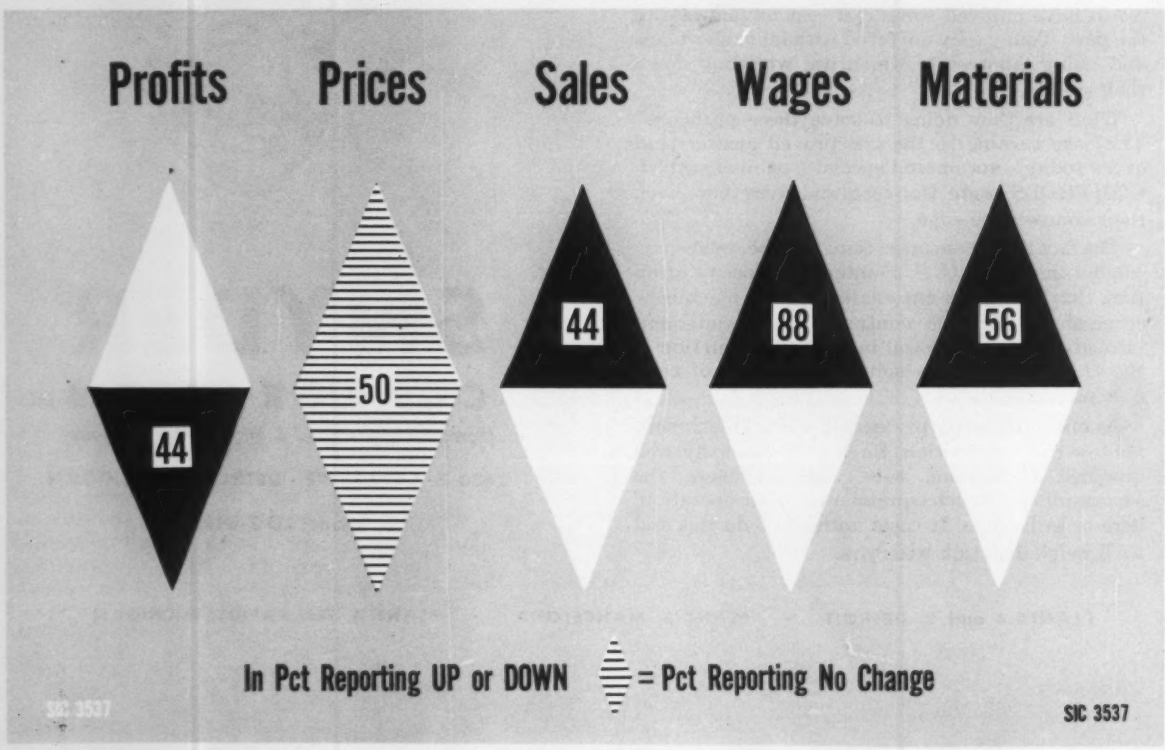
Some 56 pct of industry executives surveyed by The IRON AGE think material costs will be higher this year. And 44 pct think there will be no change. In wages, 88 pct feel these will go up further in 1961.

These are some of the views unfolded in IRON AGE's annual survey of metalworking executives. In the portion of the survey on industrial truck makers, all plants that employ at least 50 production workers were covered. Replies represent 63 pct of the employment in this group.

Price Cutting—Price cutting was scored heavily by industry executives as a cause of the present tight profit margins. Next in rank came high labor costs.

Most of the price cutting was centered in the traditional equip-

Profit Outlook Bleak for Industrial Trucks



ment lines. Cost cutting was still apparent in the custom fabrication lines as a part of the "get the order at any price" thinking of some equipment makers, according to some executives.

A number of industry men claim that lower prices don't necessarily win customers. They say that the customer who looks for a cut price must "pay for his price in future service."

No End Seen—No predictions were chanced on just when price cutting would subside. One executive said it would stop only when companies lose enough money to force them to give up the practice.

Truck makers were finding price relief in 1960 only on custom lines. Advances in prices in standard lines were impossible due to competitive pressures.

Domestic competition was in the spotlight in the industrial truck industry in 1960. Foreign competition, so far, has caused little alarm. It is expected this general situation will carry forward into this year.

Few Solutions—Not many solutions to the situation in the truck industry were offered in the survey. Like executives in other industries, most were looking for the turn in general business conditions. Only a larger, more active market would seem to be able to stop price cutting and spread out the labor cost burden over greater sales at higher prices.

A number of manufacturers are giving attention to development of new products. But some effort along these lines is specifically directed at competition with similar foreign lines. Quality and reliability factors continue to receive careful attention from truck makers, also.

SIC 3537

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	29 Pct	11 Pct
100 to 249	39 Pct	33 Pct
250 and over	32 Pct	56 Pct

Clark Equipment Co.

What Industry Executives Say

■ "Price cutting is by far the greatest problem in our industry. The only cure is for companies to lose so much money that they are forced to abandon the effort to get all the business. They then would make a reasonable profit on what they can get legitimately." E. G. Swigert, President, **The Hyster Co.,** Portland, Ore.

"Price cutting, taxes and labor costs are the cause of our troubles. The only answer is to effect an improvement in each." A. L. Lewis,

Continued

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If your plant has 20 tons or more metal turnings per month, this booklet will tell you how you can make a substantial yearly profit.

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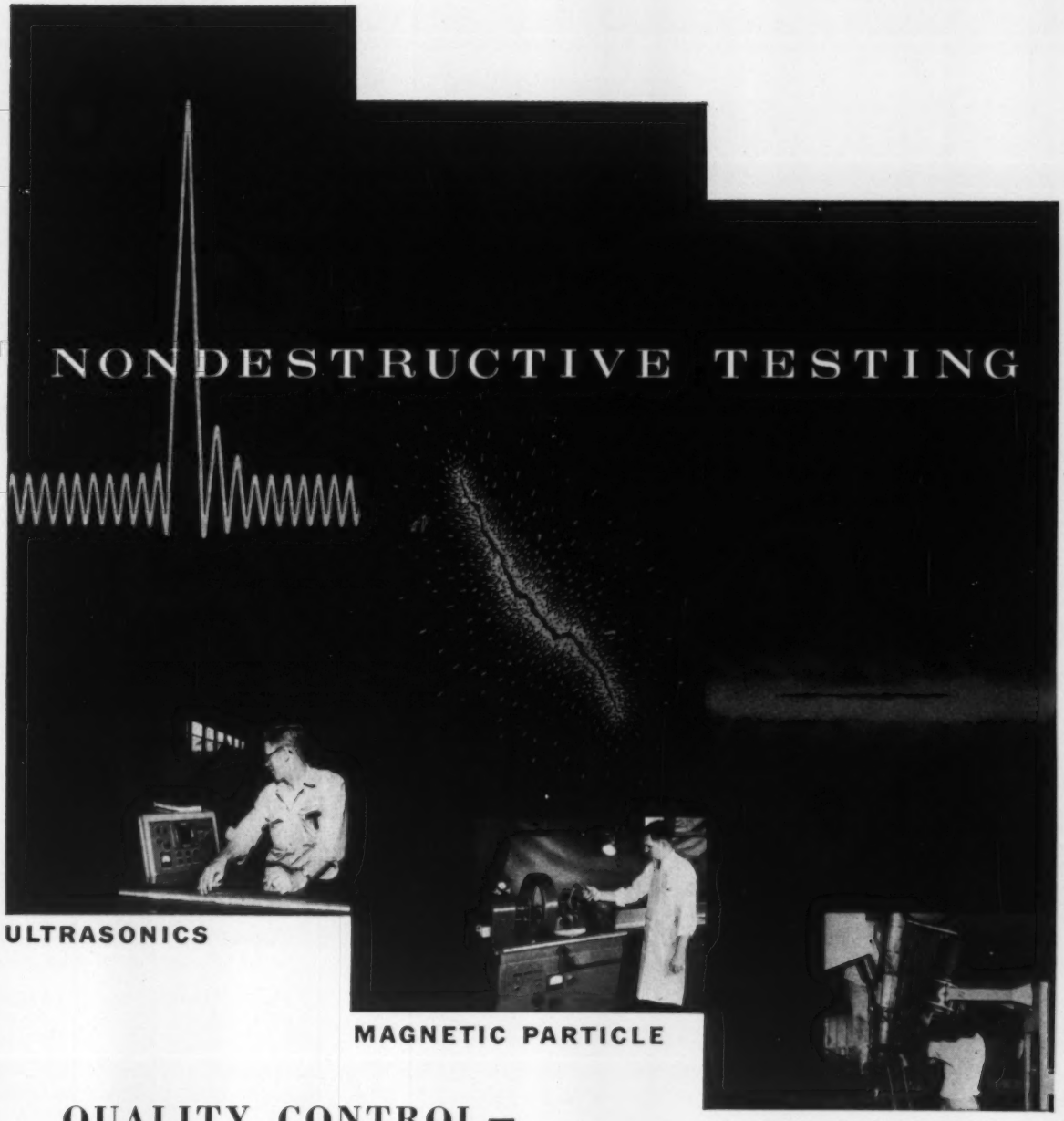
President, **Lewis-Shepard Co.,** Watertown, Mass.

"We are hit by a combination of price cutting and higher labor costs. The best cure is to stop price cutting. It does not increase business for anyone and eventually hurts the customer as well as the manufacturer. The customer must pay for his price in future service." G. Raymond, Jr., President, **The Raymond Corp.,** Greene, N. Y.

"The principal cause of tight profit margin is price cutting on 'traditional' equipment which leads to a scared attitude on custom fabricated items. Also, there is the debilating sales policy of 'take an order at any price.' A suggestion to reverse this trend: Dynamic sales attitudes are never out of style. This, coupled with capable management, is a hard team to beat." J. A. Clark, President, **St. John & Co.,** Chicago, Ill.

"Labor costs are the big reason for declining profit margins—and foreign competition in some of our items. We are combating this problem by designing new products capable, in quality and performance, of competing with these foreign lines. Price advances under present conditions are not possible except on the special custom built equipment which we make." A. H. Klumb, President & General Manager, **West Bend Equipment Corp.,** West Bend, Wis.



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Instrument Sales Increase Due

The outlook for measuring and control instruments is mixed. Sales are expected to increase, but profits look to be static.

High labor costs and imports concern industry executives.

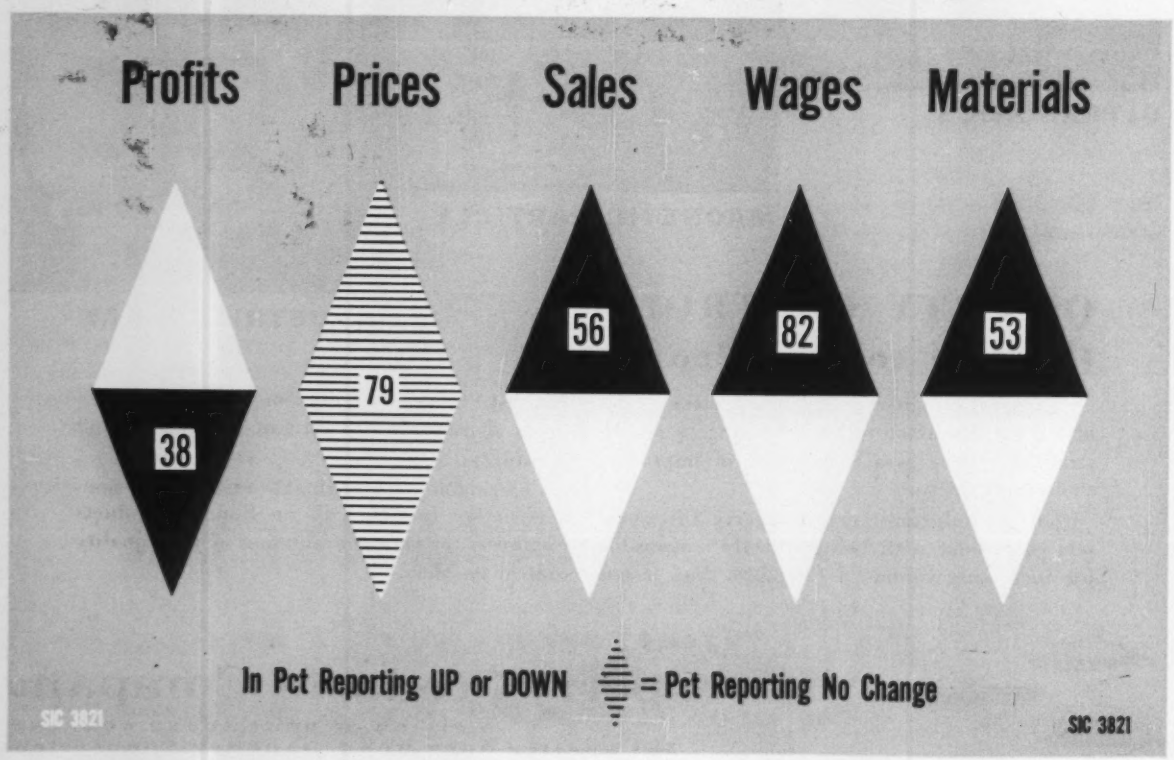
■ The 1961 outlook for measuring and control instruments is slightly "bullish" on sales. But the outlook on profits is on the "bearish" side. The reason for this is because selling prices in 1961 are expected to be the same or lower by most industry executives. At the same time, wages and material costs are expected to go up this year.

Most executives blame price cutting competition and high labor costs for the present state of business in the industry.

Broad Survey—These are points brought out in The IRON AGE annual survey of the metalworking field. The survey covered all plants in the measuring and control instruments industry that employ at least 50 production workers. Replies represent 26 pct of the employment in this group.

Some of the executives surveyed feel that high labor costs have opened the door to foreign competition which is now growing. Others believe that indiscriminate price cutting has opened the door to imports.

Mixed Views are Held, Except on Wages



At any rate, foreign competition is expected to become a greater factor in 1961.

New Equipment—A second effect of price cutting and high labor costs, according to a number of executives, has been an inability and failure to modernize production equipment. This lag has further handicapped domestic producers in competing with foreign instrument makers. It is understood that foreign tax write-off laws are more liberal than in this country.

Some executives feel that the industry will find a way to acquire newer equipment in the new year. They base this on necessity to compete with increased domestic and import competition. The increased cash flow due to expected increased sales is regarded as the clue to funds for equipment acquisition.

Also, lower interest rates may up borrowing to buy equipment. Almost six out of ten industry executives expect sales to increase in 1961. Another one out of three expect no change in sales.

Wages Up—In the matter of expected pattern of wages there is little disagreement among industry executives. Some 82 pct of them expect wages to go higher in 1961. Another 18 pct predict "no change" in wage levels. None expects wages to go lower than in 1960.

In the matter of material costs, 53 pct executives replying expect costs to rise. Another 41 pct forecast no change. And 6 pct foresee lower material costs.

Practically all instrument makers will be working on the problem of increased productivity in the new year. It is not clear, and not agreed, just how this will be done. But it is listed as a "must" by the industry.

SIC 3821

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	30 Pct	26 Pct
100 to 499	53 Pct	56 Pct
500 and over	17 Pct	18 Pct

GMC Truck & Coach Div.

What Industry Executives Say

■ "Labor costs have invited foreign competition. Now the squeeze is developing against profits and against our ability to modernize production equipment." J. M. Biddison, Vice President & General Manager, **Globe Tool & Engineering Co.,** Dayton, O.

"The profit squeeze is due to the competitive price situation. Our approach to this problem is to find ways to cut manufacturing costs by increased efficiency in manufactur-

Continued

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ing procedures. And we continually search for more productive machine tools." F. S. Lehlbach, Secretary, **Trinity Equipment Co.,** E. Roselle Park, N. J.

"Labor costs are the prime reason for the profit squeeze in our industry. The answer is increased productivity per man." W. Calerdine, Assistant Treasurer, **Sparling Products, Hersey - Sparling Meter Co.,** El Monte, Calif.

"Major factors in the profit squeeze are price cutting and labor costs. I believe price cutting will become less acute as companies realize honest prices must be held to operate profitably and remain in business. The wage squeeze will continue and will be offset by improved methods and labor-saving machinery." R. B. Winkler, Executive Vice President, **Durant Manufacturing Co., Milwaukee, Wis.**

"The reason for lower profit margins is found in the increase in labor costs. Cure: The trend can be reversed only by increasing personal individual productivity, i.e., harder work, greater skill, and more careful work to offset increased wages. I have no suggestions as to how this cure can be effected under present conditions (social, political, labor, etc)." A. C. Davis, President, **Viking Instruments, Inc.,** Tow Nest, Conn.

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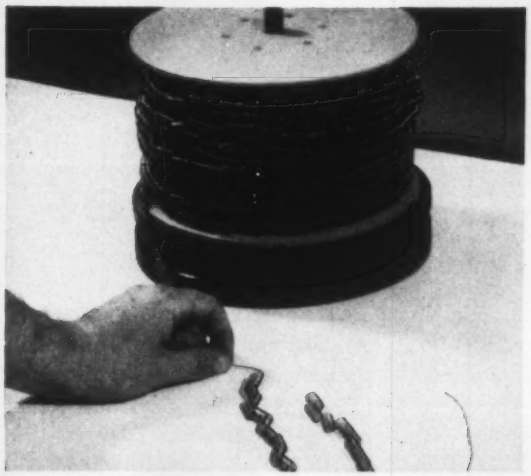

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Ohio Division, Dayton, Ohio
Cleveland Sales Office, Cleveland, Ohio
Chicago Sales Office, Chicago, Ill.
B-G-R Division, Plymouth and Ann Arbor, Mich.
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Will Stampers Hold Price Line?

The contract stamping industry expects sales to climb, but profits will continue to drop.

Prices are expected to hold at present levels because of the keen competition for business.

■ Contract stampers look for higher sales in 1961, but this isn't expected to halt declining profits.

Major factors working against the industry are price cutting, labor and taxes. There is little optimism that relief is forthcoming.

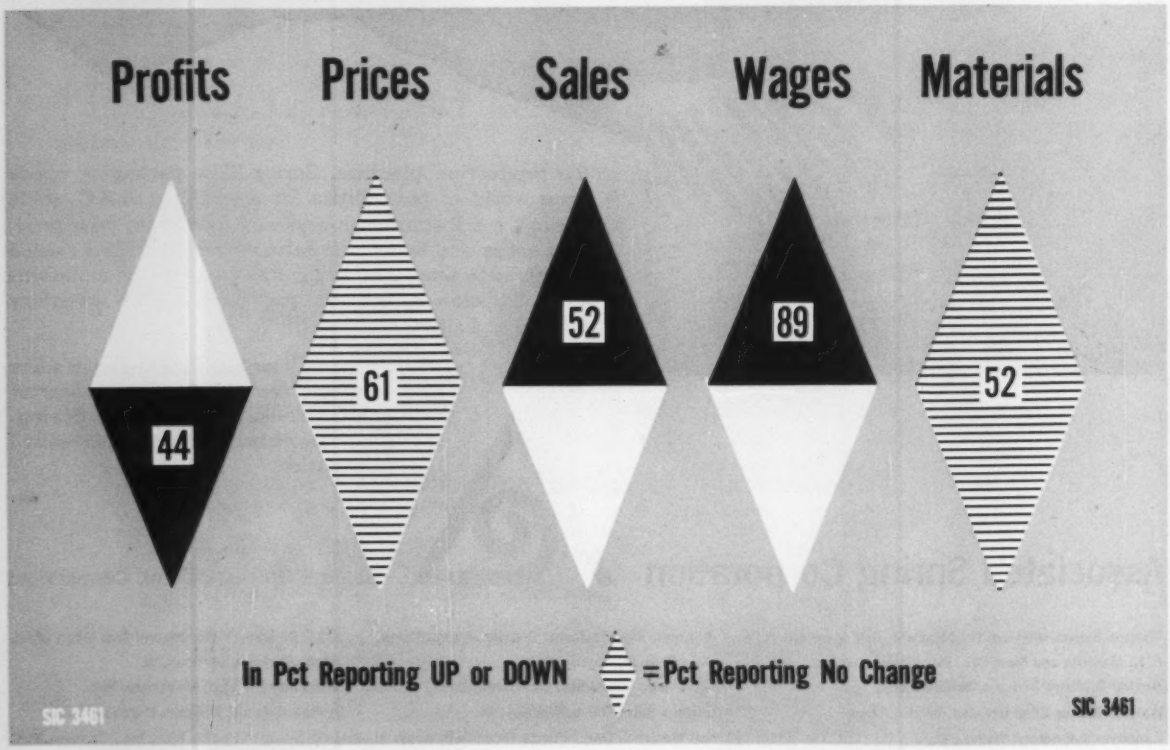
The Standard Industrial Classification (SIC 3461 "Metal Stampings") includes captive shops. However, The IRON AGE surveyed contract stampers only. In this way, companies where contract stamping is only a small part of the total operation are excluded.

More But Less—More than half of the stampers surveyed expect sales to go up in 1961. But only 27 pct expect profits to go up, too. A whopping 44 pct expect further declines in profits.

For one thing, the industry has excess capacity. This has caused a stiffening of competition. Consequently, many companies are using very sharp pencils when figuring bids for jobs.

This had led to widespread price cutting, considered by many to be the factor putting the greatest pressure on profits.

Profits Will Decline, Despite Higher Sales



Price Battle—Stampers point out that unrealistic pricing has forced many companies to go out of business. In the long run, they say, there will actually be less competition because there will be fewer companies to bid on jobs.

However, none is able to offer a solution. Most seem resigned to let it run its course and suggest that maybe, through too many low bids, the price-cutters will sell themselves right out of the market.

An argument raised in defense of price cutting is that fixed overhead costs are high. And low-profit or even no-profit business is better than none at all.

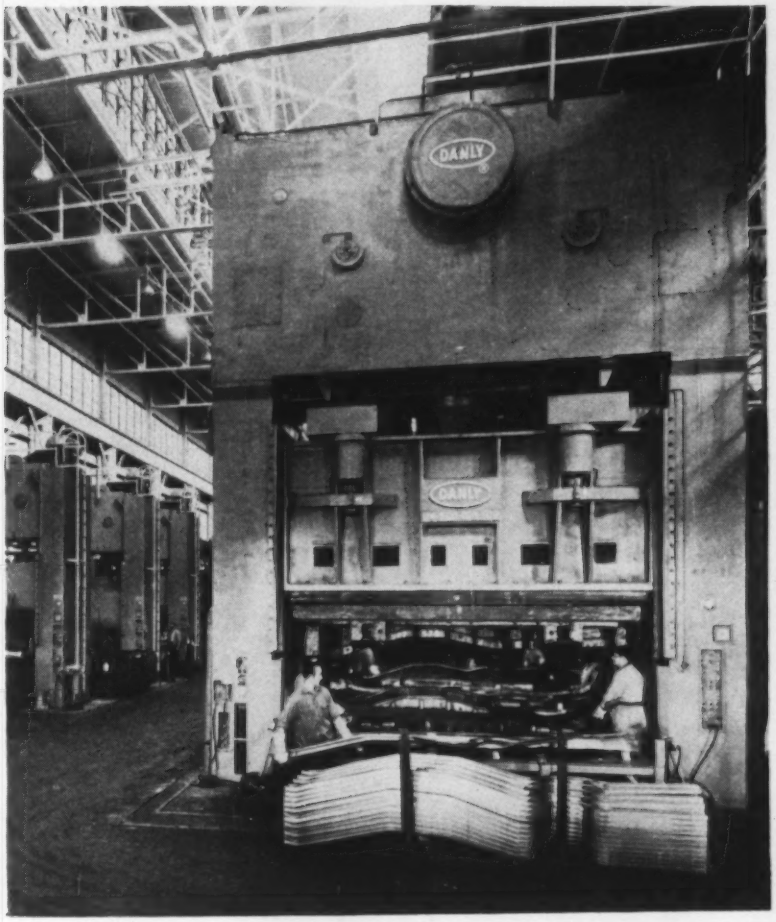
Costs to Climb—For these reasons, a large majority of stampers (61 pct) say that the selling price will stay the same. Only 25 pct believe selling prices will increase. Generally, these say that prices "must" go up because labor and material costs will be higher.

Some 89 pct of the stampers say wages will go up; only 11 pct report no change is expected; and none expect them to be lower. At the same time, 52 pct are hopeful that material costs will be unchanged. However, 43 pct fully expect to pay more for their materials.

SIC 3461

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	45 Pct	31 Pct
100 to 249	37 Pct	27 Pct
250 to 499	11 Pct	7 Pct
500 and over	6 Pct	35 Pct



The Budd Co.

What Industry Executives Say

Need to Modernize—Many are in agreement that cooperation from labor and government could help relieve many of these profit depressants. Higher wages should be accompanied by greater productivity from the workers. And tax reform, they say, is an absolute must if the industry is to modernize in order to offset higher costs.

Smaller, less efficient, stampers feel the need to modernize more accutely than the larger shops. The profit squeeze renders them unable to update their facilities at a time when they need it most.

■ "Excess capacity, leading to price cutting, is a major factor affecting metal stamping. Also, higher freight rates are shrinking the area a plant can serve. There isn't much that can be done about excess capacity. We must buy new equipment in order to keep costs in line. And this frequently adds to the capacity problem. Those considering new stamping departments can usually get very competitive prices outside —and save their investment." C. C. Higgins, President, **Worcester Pressed Steel Co.,** Worcester.

Continued

"I have no suggestions other than to take individual action to resist taking business on an unprofitable basis. Also, there should be resisttance against increasing labor costs without a corresponding increase in production." L. E. Dail, President & General Manager, **Dail Steel Products Co.,** Lansing, Mich.

"All items listed contribute, to some extent, to the squeeze on profits. We feel the principal cause is taxes. If we do make any profit, the government gets the cream off the top. This makes it mandatory to make twice as large a profit (if possible) in order to pay our stockholders and to replace what obsolete equipment we can. Tax revision is mandatory if we, and other businesses such as ours, are to remain in business." J. E. O'Brien, President, **Banner Die Tool and Stamping Co.,** Columbus, O.

"Price cutting is the worst problem, followed by a lack of effort by labor." R. H. Serrick, Manager, **Defiance Stamping Co.,** Defiance, O.

"In the face of rising costs, frantic price cutting (and quoting), by inefficient producers struggling to stay alive, keeps prices from adjusting upward as much as they should. In some areas it may be possible to meet this type of competition with improved operating techniques. But in most cases, this desperate price cutting hurts everyone—except, possibly, the buyer." N. R. Thal, President, **Inshield Die and Stamping Co.,** Toledo.

"The power of labor unions to force wages and fringe benefits up without any relationship to productivity is an important factor in the continuing squeeze on profits. Outmoded depreciation laws and the government, through taxation being the equivalent to a majority stockholder in every business, are other important factors. With at least four years of p r o - l a b o r, give-away government in prospect, I see only an intensification, not a relief, of these problems." Ernest Davis, Vice President, **Kickhaefer Manufacturing Co.,** Milwaukee.

"From the viewpoint of the operator of the small, job stamping shop, price cutting and inability to modernize production equipment seem to be the main reasons for the profit squeeze—with emphasis on modernization. The independent operator is limited in his ability to modernize tooling in the way of automation. This is because he has no control over the future of the job he produces." J. W. Robinson, Sr., President, **Midwest Stamping and Manufacturing Co.,** Bowling Green, O.

"Lower prices for steel scrap are a major squeeze on profits." C. C. Caditz, President, **Northern Metal Products Co.,** Franklin Park, Ill.

"Increased wages and other benefits will cause us to increase our prices." A. E. Harper, Executive Vice President, **Tool Manufacturing Co.,** St. Louis.

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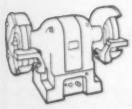

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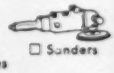


☐ Sanders

Builders Score High Wage Costs

Despite the prospect of greater sales, machine tool builders say higher prices are coming.

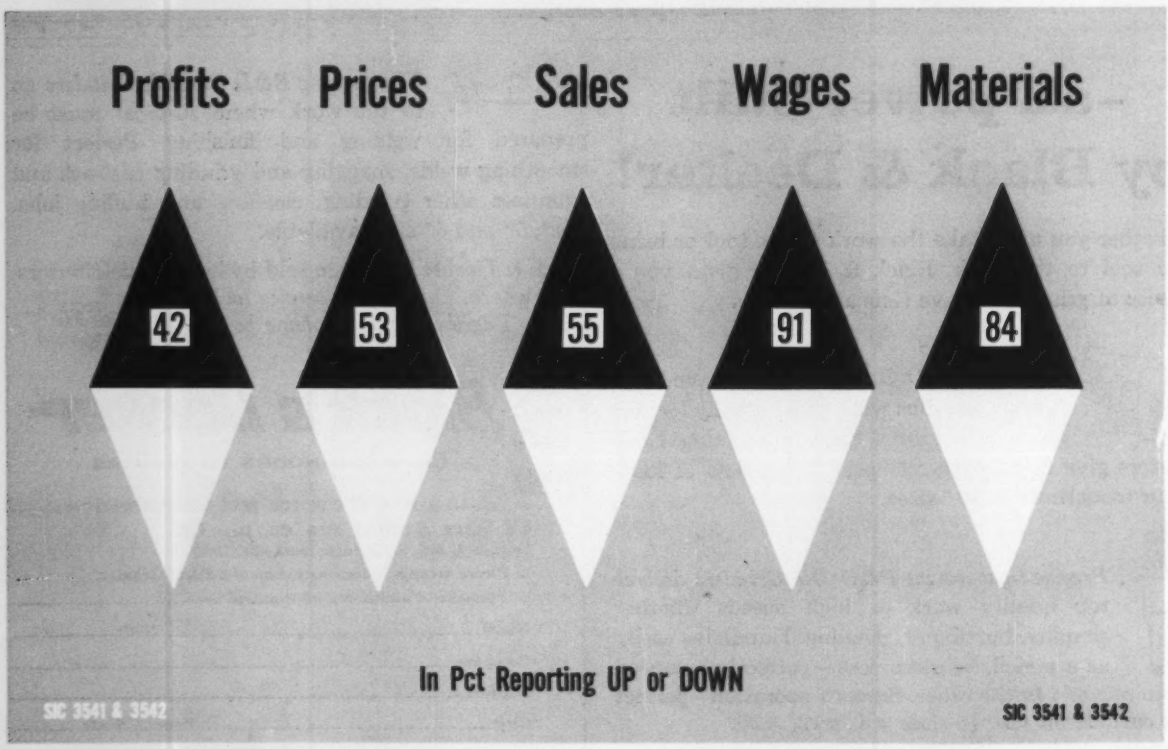
Even so, the majority don't look for any improvement as far as profits are concerned.

■ The machine tool industry is beset by problems on all sides: Labor costs are among the highest for any durable goods industry, and climbing; It is receiving stiff competition from foreign builders in the bread-and-butter lines of standard tools. Depreciation policies discourage modernization programs both within the industry and on the part of its customers; and price cutting is rampant.

These are conclusions based on replies from machine tool executives to The IRON AGE's annual survey of plants employing 50 or more workers. This year, replies were received from plants with 67 pct of the industry's employment.

Critical Problem—The effect of labor costs on profits seems to be one of the most critical problems. The industry's products contain a high labor content—and a large portion of it is skilled labor. Many companies complain that workers lack pride of workmanship and the desire to work with efficiency. Rising wages are not accompanied by

Increased Costs Will Bring Higher Prices



a corresponding increase in productivity. And 91 pct say they expect wages to increase even higher in the coming year.

Materials used by the industry are also in the premium class—alloy and tool steels, controls, etc. Some 84 pct of those replying in the survey say they expect the cost of these items to go up in 1961; only 15 pct believe they will hold at present levels.

Higher Prices—Only a few believe price cutting will drive prices lower—3 pct. And 44 pct believe machine tool prices will remain stable. But the majority, 53 pct, predict higher prices.

And a majority, 55 pct, also predict an improvement in sales. Lower sales are expected by 22 pct, while 23 pct don't believe there will be any significant change.

Government Policies — Fewer have confidence that profits will keep pace with sales, however. Only 42 pct predict an improvement in profits. And a substantial number, 34 pct, look for a continued worsening of profits. Static profits are predicted by 24 pct.

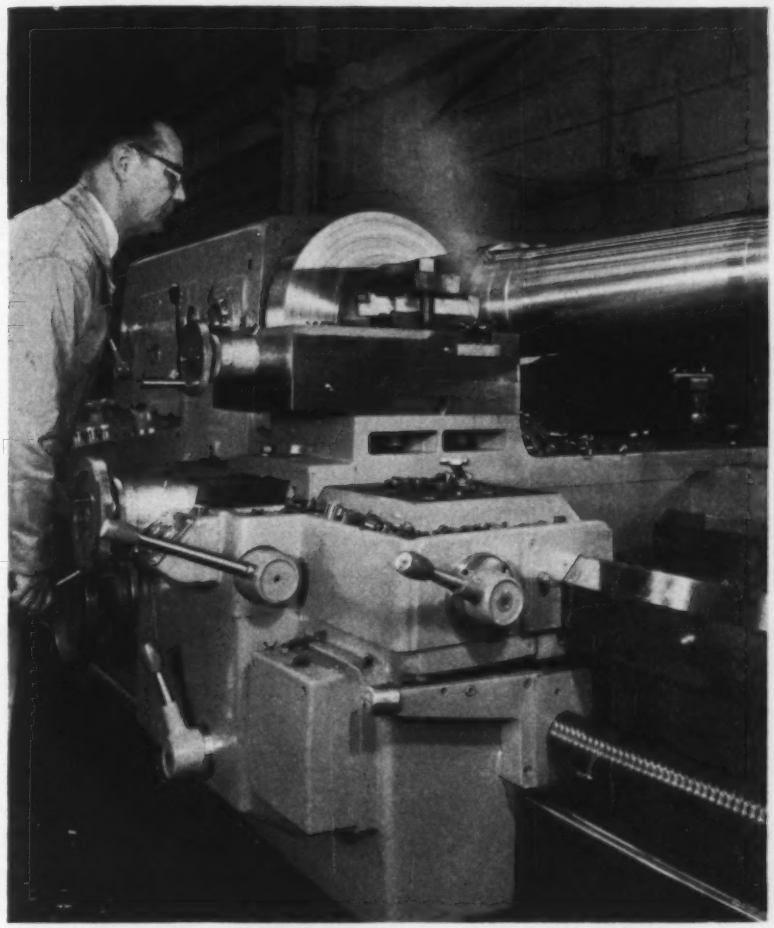
There is a strong current of opinion that the government is not helping the industry all that it should. For one thing, tool builders point out that the government continues to dispose of its surplus tools without always replacing them with more modern equipment.

Depreciation policies make it difficult for industry to modernize facilities. Continually increasing taxes also leave less and less capital for this purpose. Consequently, companies in need of new equipment must defer purchases longer than economically desirable.

SIC 3541 & 3542

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	32 Pct	13 Pct
100 to 249	42 Pct	30 Pct
250 and over	26 Pct	57 Pct



Sidney Machine Tool Co.

What Industry Executives Say

■ "Price cutting due to lack of demand." J. R. Barefoot, President, **The Federal Machine and Welding Co.,** Warren, O.

"Price cutting and labor costs." C. E. Gilbert, Jr., Vice President, **The Cincinnati Gilbert Machine Tool Co.,** Cincinnati.

"Tax revision, including depreciation, must come if industry is to expand. Relief on taxes would automatically help many of our industrial ills." A. V. Bodine, President, **The Bodine Corp.,** Bridge-

Continued

port, Conn.

"Let's halt the wage spiral." Lockwood Oliver, President, **Bardons & Oliver, Inc.,** Cleveland.

"I am of the opinion that the art of metal removing is on the threshold of a revolution in technique. Automation was the boy five years ago, but was suited only to mass production shops. Tape control is good for lot producers with a great variety of work to be accomplished. All innovations are slow to catch on, but the pressure is so great at this time that it probably will move faster than usual.

"However, there is an ever increasing tendency for Congress and the executive administrators of our laws to place business in a strait jacket." L. W. Scott Alter, President, **The American Tool Works Co.,** Cincinnati.

"We believe there are several reasons for the profit squeeze, and certainly price cutting, higher labor costs, and occasional foreign competition are contributing factors. Furthermore, the inability of depreciation allowances to enable companies to recover sufficient funds to invest in new and more highly productive equipment has been a factor.

"We know in our industry that we must increase productivity in order to offset labor and material costs. Inadequate depreciation allowances stifle the adoption of improved production methods that can improve the profit picture.

"Another reason for the profit squeeze results from a changing complexion of our business. A few years ago we built only one or two models of machines and could more readily tool up for maximum efficiency in production. Today's market conditions require a much wider range of machines with many different sizes and several options with regard to control systems. And it has become obvious that production efficiency is bound to suffer when dozens of different options are available.

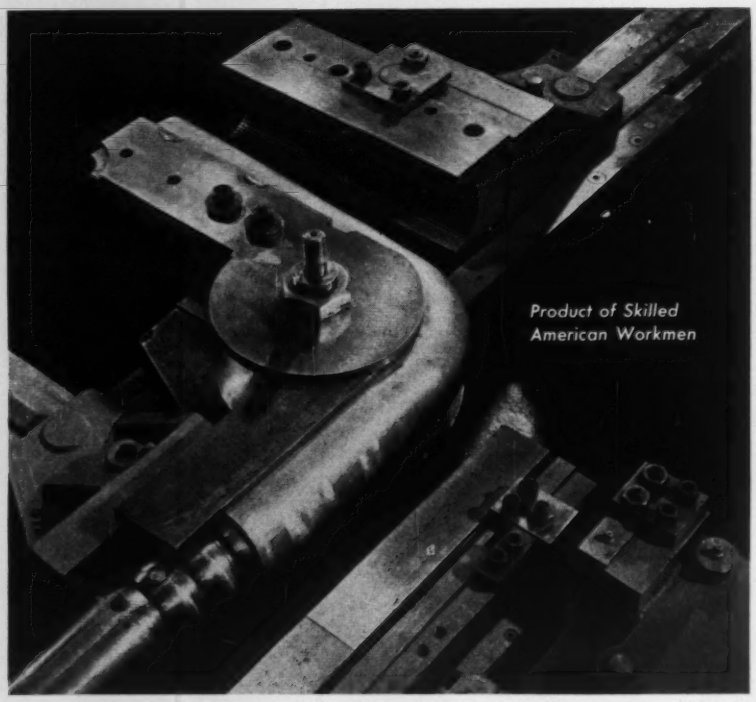
"Unfortunately, prices must remain relatively stable and cannot always reflect the additional manufacturing costs." H. A. Beyer, Vice President-Sales, **DeVlieg Machine Co.,** Royal Oak, Mich.

"Because of the lack of business, industry has gone to price cutting. However, with a rise in order volume, the profit picture should improve." J. A. Hauser, Assistant to the President, **Davis & Thompson Co.,** Milwaukee.

"We sincerely believe that profit margins will increase during 1961. Pricing is more stable and will become more so as the year progresses." T. Singelis, Vice President—Marketing Services, **Clearing Machine Corp., Div. of U. S. Industries, Inc.,** Chicago.

"Sales expenses are higher, and the efficiency of workers is lower. To improve sales, we will concentrate more on larger companies. Our activity will be directed more to the active user. Less time will be

COLUMBIA
TOOL
STEELS



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spent on 'dead or doorbell-type selling.' "—H. V. Bailey, Sales Manager — Automatics, **Greenlee Bros. & Co.,** Rockford, Ill.

"I don't believe price cutting has ever presented serious difficulty, but it is a factor during industry recession periods like the present. More favorable depreciation allowances would undoubtedly stimulate new equipment purchases. New developments, particularly in hydraulics and electronics, necessitate more frequent design changes. This allows a shorter period for amortizing engineering and development costs than formerly.

"In the case of machine tool builders, they too cannot use the same type of production equipment they design for their customers. Therefore, they are faced with the problem of low production quantities of goods containing a high content of highly skilled labor. Foreign competitors have the same volume and materials costs, but labor costs much less, including engineering and designing." George Gorton, President, **George Gorton Machine Co.,** Racine, Wis.

"Labor, material costs, and foreign competition are all putting the squeeze on profit margins." E. H. Noll, Secretary, **Famco Machine Co.,** Kenosha, Wis.

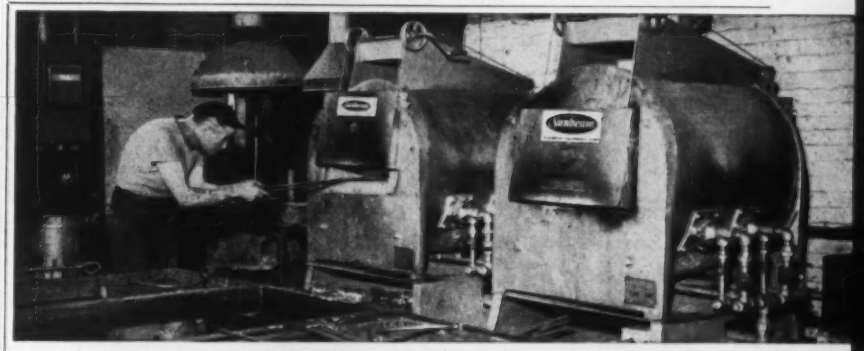
"We have, so far, been able to offset increases in labor and material by investments in more productive equipment and precision tooling. This may not continue to be as productive of cost savings in the decade ahead as in the decade just passed. We are improving our ability to compete internationally by working out agreements with companies who are in need of our products and, at the same time, we have a need for theirs.

"There has been some indication of price cutting as some marginal producers struggle to retain important accounts. However, it is our feeling that price stability will be a tremendous factor in the coming months. This will prevent many of us from too easily protecting our profits through the medium of price raises." J. E. Erskine, President, **Racine Hydraulics & Machinery, Inc.,** Racine, Wis.

"In our discussions, we have found that taxes, labor costs, and foreign competition are squeezing profits." G. A. Echardt, Sales Manager, **Onsrud Machine Works, Inc.,** Chicago.

"The squeeze caused by taxes, labor costs, and inability to modernize production equipment might be helped by: Designing for lower manufacturing cost and greater capability of the product; and encouraging replacement of shop equipment and upgrading programs." T. L. Strimple, President, **The National Acme Co.,** Cleveland.

"Constant increases in costs which cannot be passed on." J. F. Herkenhoff, President & General Manager, **The Minster Machine Co.,** Minster, O.



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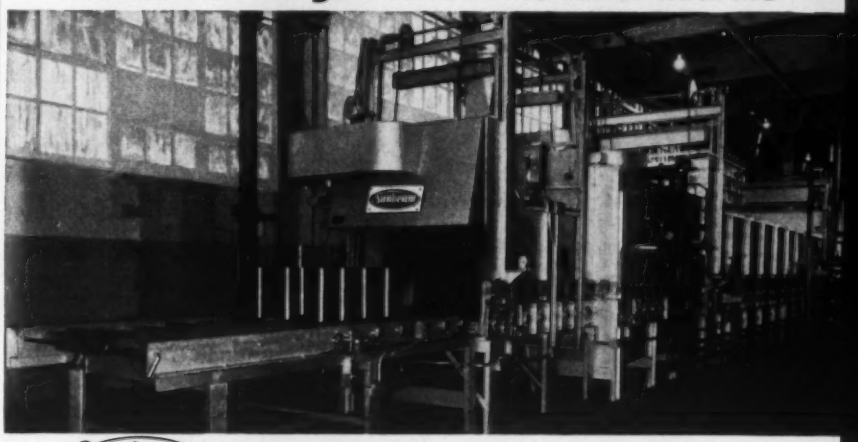

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INDUSTRIAL *Sunbeam* **FURNACES**

Iron Founders See Better Year

Half of the iron founders are optimistic that sales and profits will take a turn upward.

Price competition is expected to lessen, so many believe that prices will go higher.

■ Malleable iron founders look for greater sales and higher profits in the coming year, but the annual IRON AGE survey of the industry shows that the expression of optimism is not unanimous.

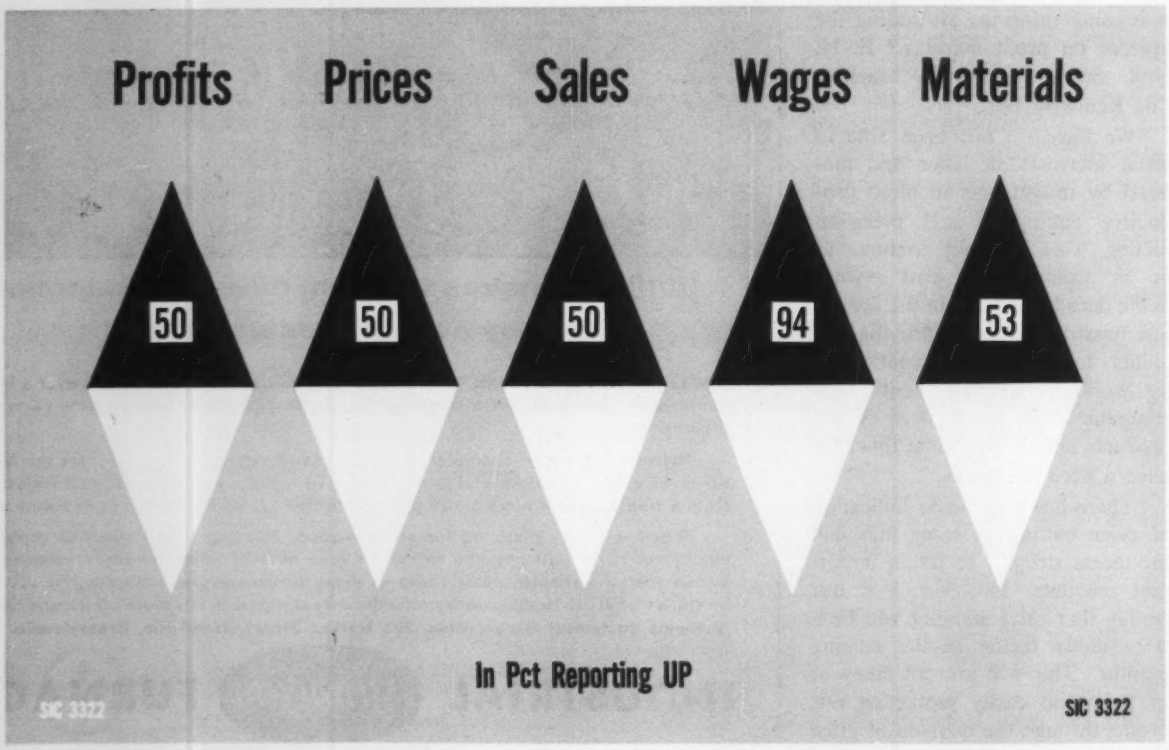
The survey covers all plants in the industry employing 50 or more workers. Replies represent 47 pct of the employment in this group.

Higher sales are predicted by 50 pct of those responding while 22 pct expect a sales decline. Similarly, 50 pct say they believe profits will go up with sales. However, a significant 38 pct disagree; they predict profits will slump even further in the months ahead.

Price Pressures—Cost pressure continues to build up. Some 94 pct of the replies indicate that the industry will see wages go up. And higher material costs are expected by 53 pct; another 41 pct hopefully predict no change in material costs.

But a sales increase isn't going to offset higher wage and material costs by itself—and produce higher

Chances Are Even for a Price Increase



profits. Increased demand will relieve some of the pressure to cut prices.

Consequently, 50 pct of the replies say selling prices will also go up as a result of the several factors working in combination. At best, 37 pct believe prices will hold steady, and 13 pct look for a continuation of price cutting.

Other Problems—Not all of the problems of the industry are due to lowered demand and higher material and labor costs.

Many executives say their companies are unable to take advantage of the technological developments in production techniques. Government depreciation policies come in for a large part of the blame, but taxation policies at both national and local levels are given part of the responsibility.

Even customers are driving up the cost of doing business. Many are reluctant to carry inventories. This creates an added demand on producers for rush deliveries.

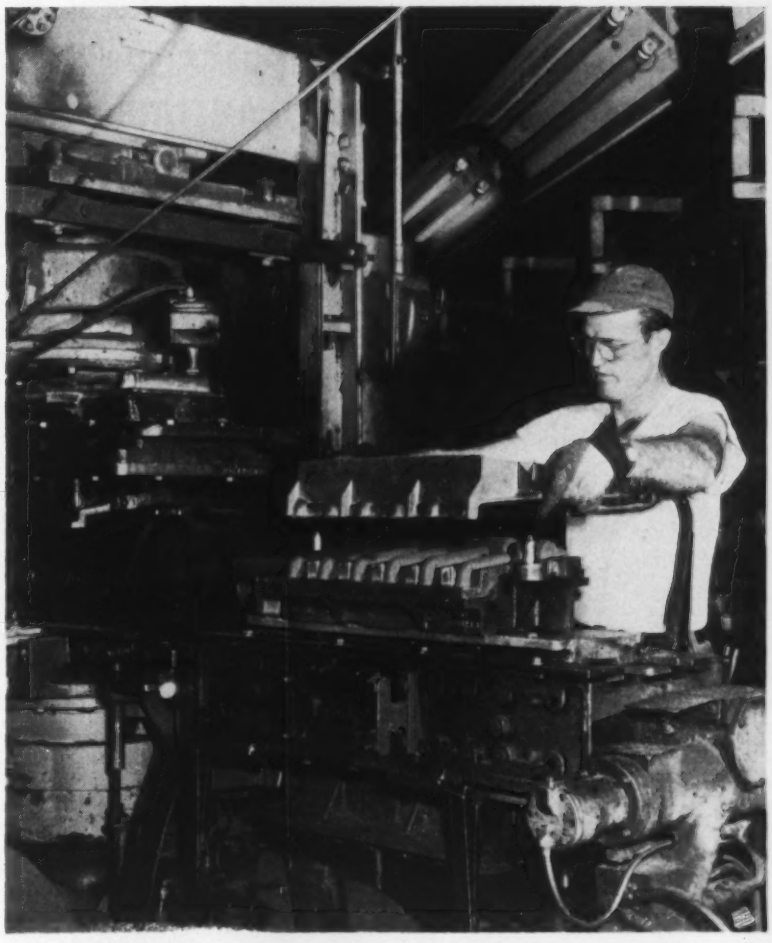
Still Some Hope—Some producers aren't willing to concede that all is lost, however. They admit that malleable iron foundries are receiving more and more competition on more and more fronts—both from overseas producers and from other materials.

To combat this, they suggest stepped-up sales and engineering effort. They point out that sales education is needed—even within the industry. For one thing, the replies suggest, producers should worry less about being replaced by materials or methods of proven superiority and concentrate more on the many areas where malleable excels.

SIC 3322

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 249	52 Pct	45 Pct
250 and over	48 Pct	55 Pct



Malleable Founders Society

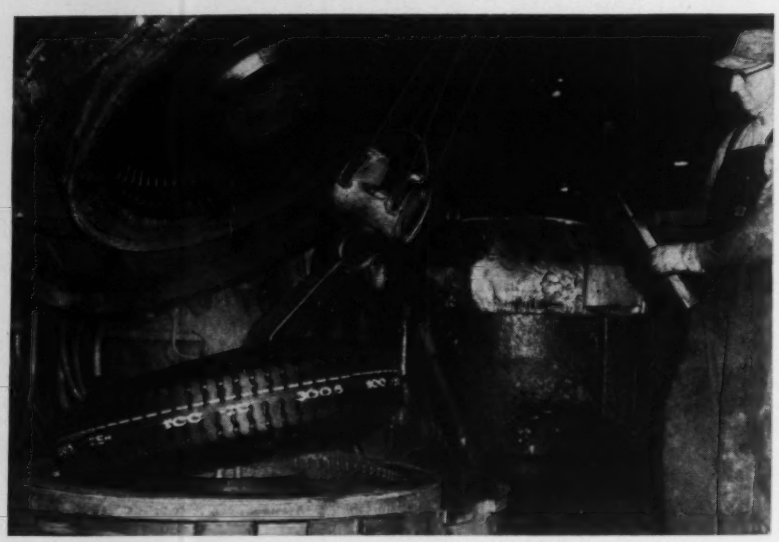
What Industry Executives Say

■ "Principal cause of lower profits for malleable iron foundries is price cutting. The squeeze can be corrected by realistic, uniform cost accounting." J. R. Abbott, Treasurer, **Wagner Malleable Iron Co.,** Decatur, Ill.

"In many instances, price cutting is being used as a measure to absorb large, fixed costs built up to maintain large operations. Also, it will be difficult to pass labor increases on to customers in 1961. But many

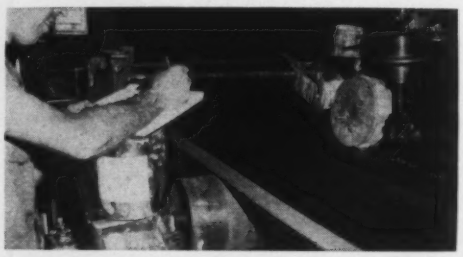
Continued

PANNIER MASTER MARKING SURVIVES WATER, HEAT, PRESSURE IN FIRESTONE TIRE MANUFACTURE



(top) A cured tire being pulled from a tire mold at Firestone Tire & Rubber Co., Akron. The Pannier code markings are still clear after having undergone water washing, and the heat and pressure of molding.

(right) The Pannier Code Printer rolls continuously on the moving tread extrusion, providing clear, unsmudged marking of tire size, stock code, shift and date. Code printer characters are quickly and easily changed. A wide range of type size is available; special characters or trade marks can be obtained.



(right) Pannier marking is immune to the effects of the dash of cooling water that pours over the hot extrusion. Pannier marking inks are scientifically formulated for each specific use and physical factor.

Whatever the industry, whatever the marking requirement – printing, stamping, embossing, stenciling, branding, Pannier has the techniques and proven equipment to do the job. Pannier engineers will be glad to consult with you without obligation.

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241 Pannier Bldg., Pittsburgh 12, Pa.

industries, such as trucking, are currently in negotiations or will be during the coming year. And the resulting increases will be significant." J. S. Shellaburger, Vice President-Industrial Sales, **The Dalton Foundries, Inc.,** Warsaw, Ind.

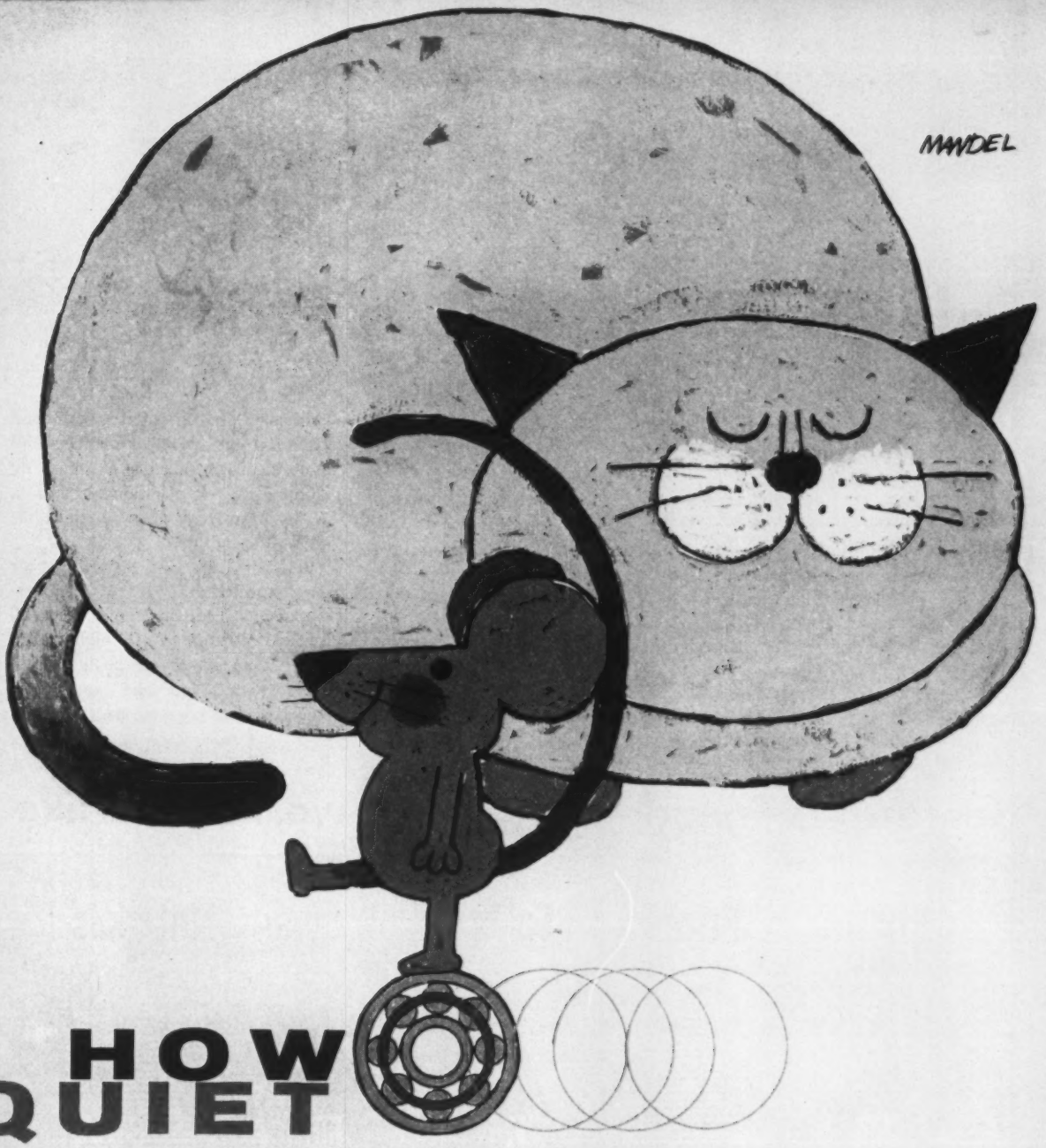
"Labor costs are squeezing profit margins." Wm. Scott Roby, President, **Peoria Malleable Casting Co.,** Peoria, Ill.

"We are squeezed out of foreign markets while imports hit us at home." H. T. Morgan, Vice President, **New England Malleable Iron Co.,** Warwick, R. I.

"Domestic competition has stiffened. But costs, including taxes, continue to go up. Greater demand for products should reverse the trend." P. R. Van Duyne, Chairman of the Board, **Meeker Foundry Co.,** Newark, N. J.

"The malleable iron industry has been hard hit by the overall recession in business." M. D. Yatsko, President, **Terre Haute Malleable & Manufacturing Co.,** Terre Haute, Ind.

"You've been with us 35 years now, Wilson, and never asked for a raise. I like that in a man."



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Sales Boost Is Key to Profits

Founders are certain that labor costs will go up, but they aren't so sure about materials.

Higher sales, they believe, will mean higher profits without resorting to increasing prices.

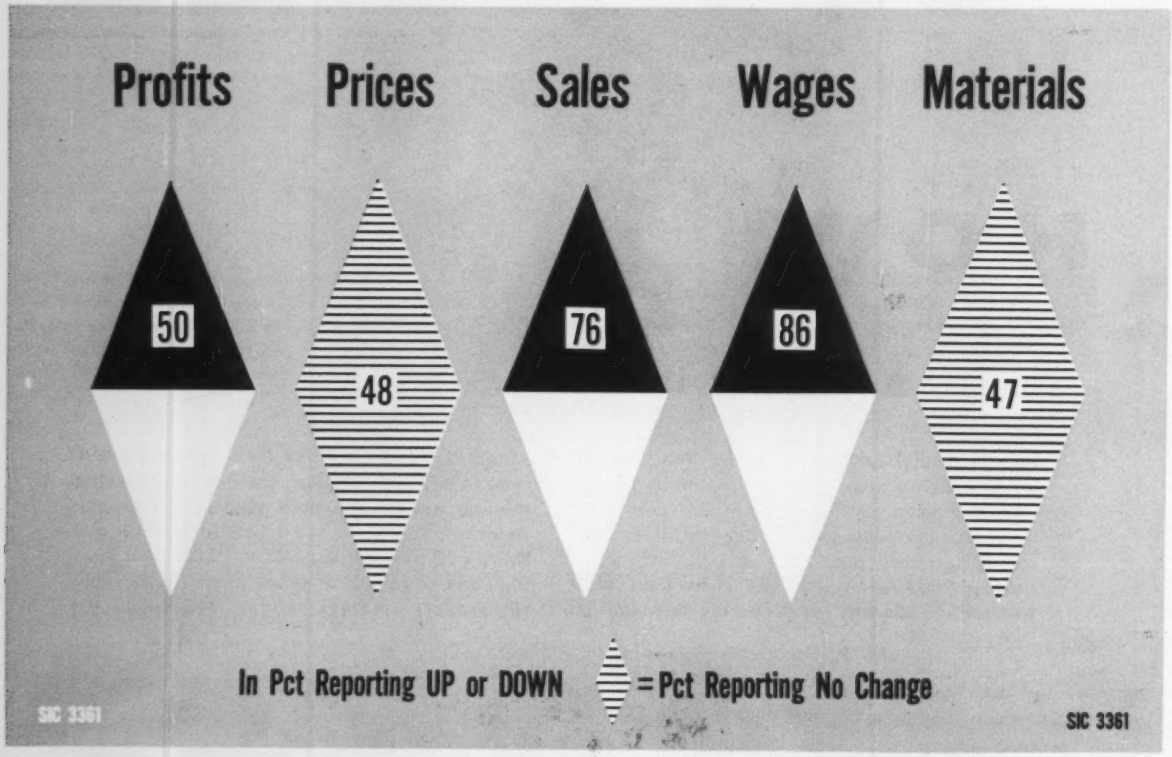
■ Nonferrous founders are looking forward to a year of greater sales and higher profits—without increasing prices. These are key points brought out in The IRON AGE's annual survey of executives. Replies represent 17 pct of the employment in plants with over 50 workers.

The industry has its problems. One of the largest is overcapacity which has led to price cutting. Yet, in spite of this, many companies realize there is a continual need to modernize facilities—both to improve quality and reduce costs.

Self-Criticism—At the same time, the industry came in for some self-criticism. Much of the criticism centered on pricing practices and failure of producers to stand by quotations. It is thought that a better knowledge of costs might improve this situation.

Higher sales in the coming year are expected by 76 pct of the respondents. At the same time, 50 pct expect profits to be higher. But 27 pct expect lower profits, compared with 23 pct who expect them to be about the same as 1960.

Nonferrous Founders Hope to Avert Price Hike



Prices are expected by 48 pct to hold even. This is slightly more than the 42 pct who predict selling prices will go higher.

Key to Profits—Higher wages are forecast by 86 pct of those answering the survey. The outlook for material costs is less clear. The price of materials is expected to stay the same by 47 pct. But 46 pct believe costs will rise in 1961.

But the key to higher profits would seem to be the predicted boost in sales. As one executive points out, fixed costs are high. The greater the utilization of facilities, the better are the prospects for an improvement in profit margins.

More for Autos—The trend towards greater use of aluminum castings in automobiles, hastened along by the new, smaller cars, is cited by some as the reason for greater optimism in 1961.

Unlike many other durable goods industries, foreign competition doesn't figure very prominently in the industry's problems. Only a few believe it is a factor and the impact is more specific than general—as is the case with some hardware and plumbing items in some coastal markets.

Ease the Squeeze—The larger problems are price cutting and labor costs. Improved demand, it is believed, will help ease squeeze on profits currently caused by price cutting. Solution to the labor costs problem is not as easy.

No one expects wages to go lower. Consequently, lower labor costs must come about through improved efficiency. This calls for modernization and research. Modernization is tied to depreciation and other taxes. But some executives believe more should be done by the industry as a whole to develop new production techniques.

SIC 3361

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	54 Pct	67 Pct
100 and over	46 Pct	33 Pct

Aluminum Co. of America

What Industry Executives Say

"We don't cut prices, we raise prices. But taxes and labor costs outrun us. Foreign competition will bring us to our knees. No profit and expensive money prevent us from modernizing. Inflation is about to become rampant." Oscar Zielke, President, **Product Engineering Mfg. Corp.,** Bridgman, Mich.

"Profits in the commercial investment casting industry have always been relatively low. This is probably due to an excess of small companies in the field. Many have an inade-

Continued

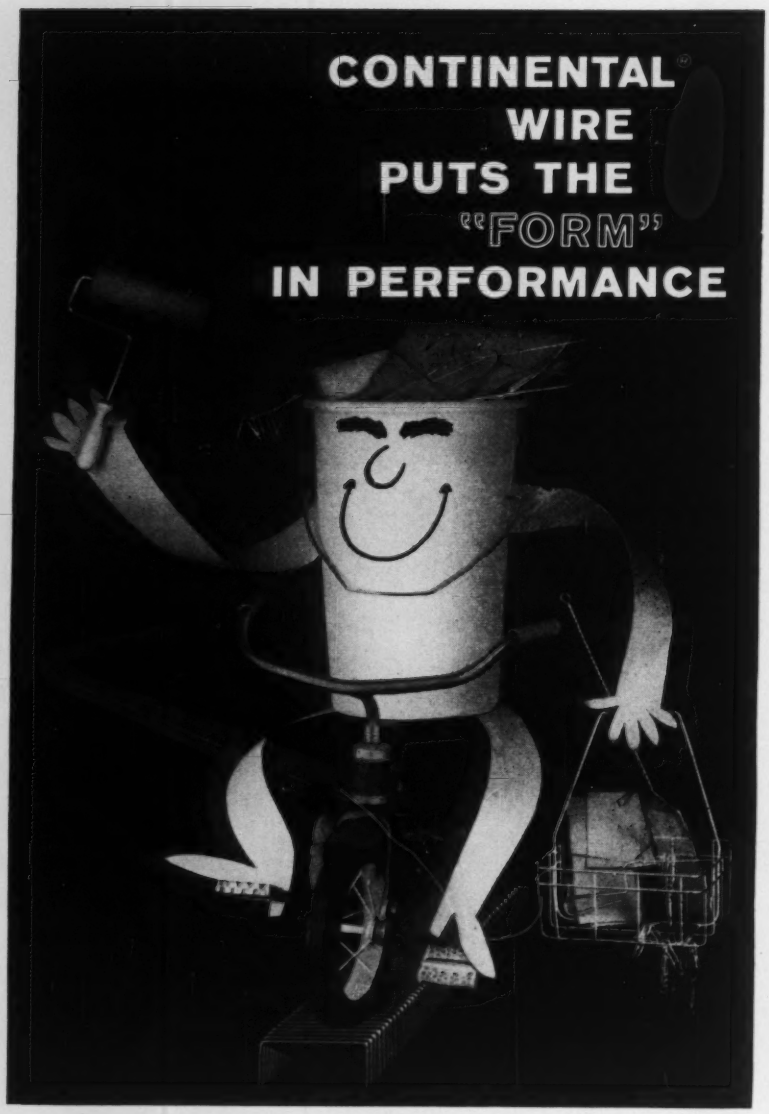
quate concept of cost and return on investment, all of which encourages price cutting.

"As the industry matures, managements must realize the importance of stable prices to sustain profits which should be invested in improved plant, equipment, and production techniques for greater operating efficiency.

"Only this sound business philosophy can bring the lower prices necessary to broaden the market horizon for greater sales." J. H. Morison, President, **Hitchiner Manufacturing Co., Inc.,** Milford, N. H.

"We are being hurt by price cutting. Labor costs and inability to modernize production equipment go hand-in-hand and, to some extent, so does foreign competition.

"If we adopt some of the enlightened policies for depreciation of our foreign competition, we will be able to reduce labor costs with better equipment. This would at least decrease our inability to modernize production equipment." W. C. Smith, President, **H and S Metal Products Co.,** Los Angeles.



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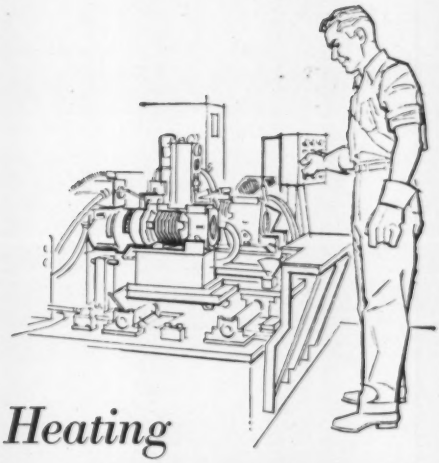
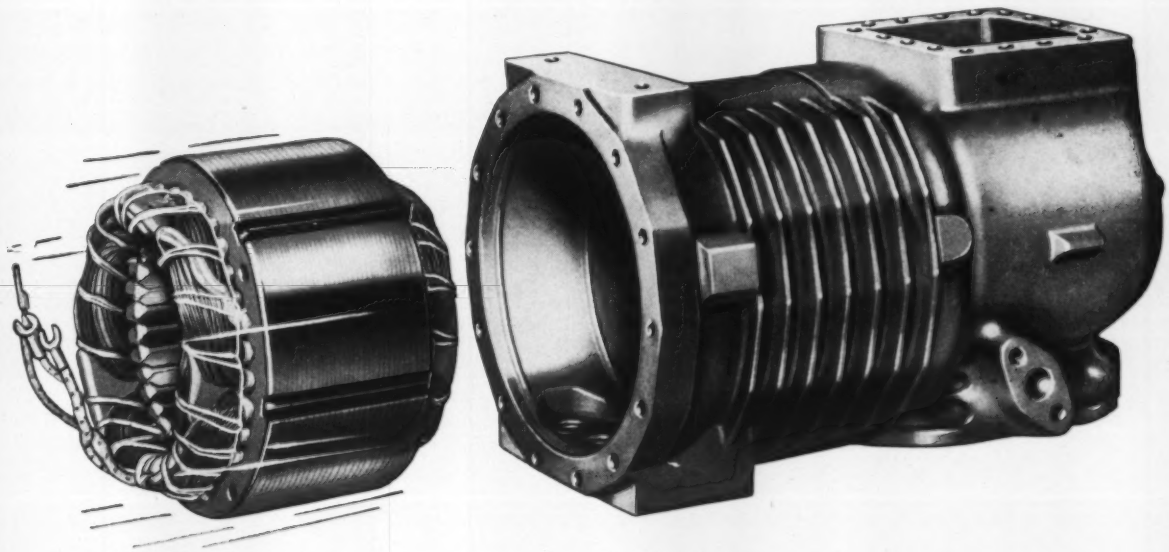
"I'm going to invite some government people in to get some pointers on evacuation!"

How a **Shrink-Fit** E-x-p-a-n-d-s Profits

Copeland Saves $100,000.00 A Year

with TOCCO* *Induction Heating*





Press-Fit Method

In the assembly of motor-compressors for their air conditioning and refrigeration products, Copeland Refrigeration Corporation formerly employed air presses for force-fitting their 1/5 HP through 1½ HP motor housings and stators. This method was costing Copeland $100,000.00 annually in labor, material and quality control expense to maintain the high quality of its product.

TOCCO Shrink-Fit Method

To reduce these costs, Copeland installed a 30 kw, 10,000 cycle TOCCO Induction Heating Unit. Motor housings are heated to 400° F. resulting in up to .013″ expansion. After cooling, the motor housing shrinks to form a predictable and perfect fit with the stator. Stator scoring and distortion are eliminated and $100,000.00 annual saving realized.

Whether your production problem is shrink-fitting or higher temperature applications such as brazing, heat-treating, forging or melting, look to TOCCO for an economical solution to any metal-heating problem.

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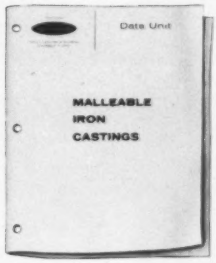
New Cars and Trucks Use More Malleable For Better Performance...Lower Cost

As the automotive industry steps up its drive to pack greater performance into lighter weight vehicles and still hold costs in line, the demand for Malleable iron castings continues to increase. Noted for their strength, toughness, machinability and economy, Malleables are used as key components in every make and type of vehicle.

Matching each new advance in automotive technology, Malleable is now available in a broad range of properties, including tensile strengths from 50,000 to 120,000 psi!

Find out now how much Malleable castings can improve your products. Contact any company that displays this symbol —



For Free Literature on advantages of Malleable iron castings, with examples from the automotive industry, ask any member company for Data Unit No. 113, or write to Malleable Castings Council, Union Commerce Building, Cleveland 14, Ohio.

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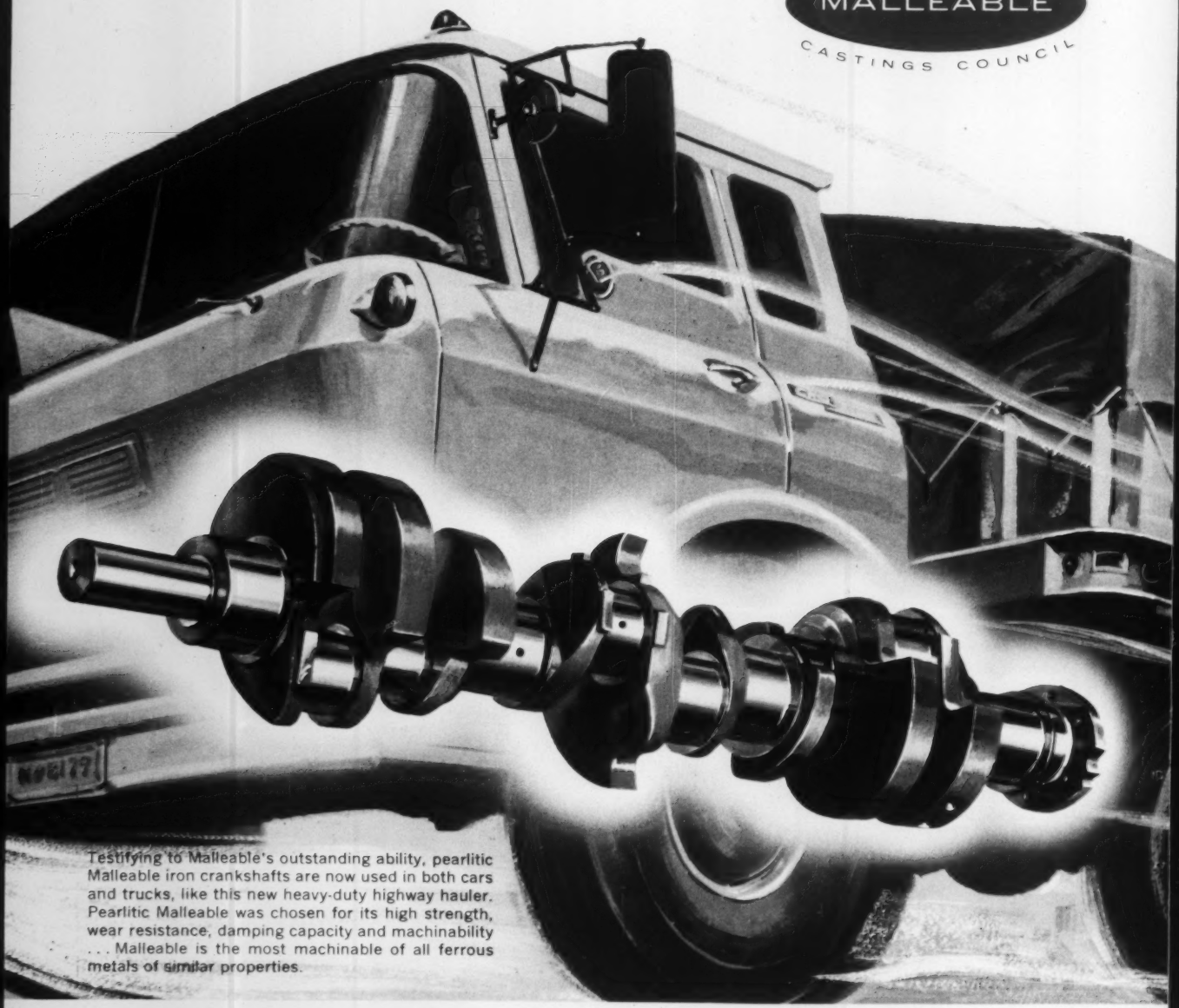
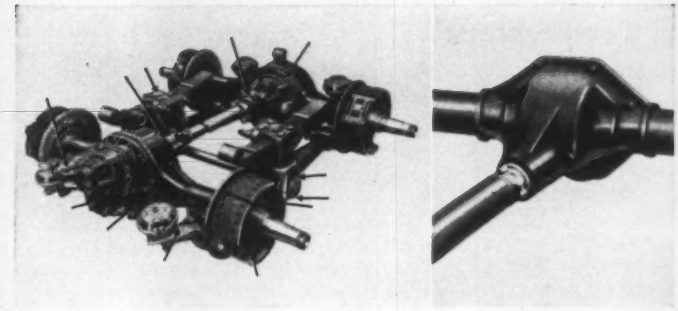
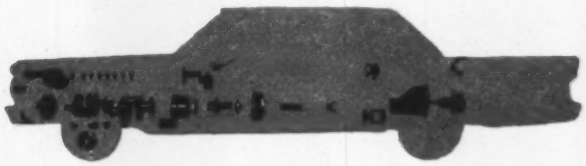


Testifying to Malleable's outstanding ability, pearlitic Malleable iron crankshafts are now used in both cars and trucks, like this new heavy-duty highway hauler. Pearlitic Malleable was chosen for its high strength, wear resistance, damping capacity and machinability . . . Malleable is the most machinable of all ferrous metals of similar properties.



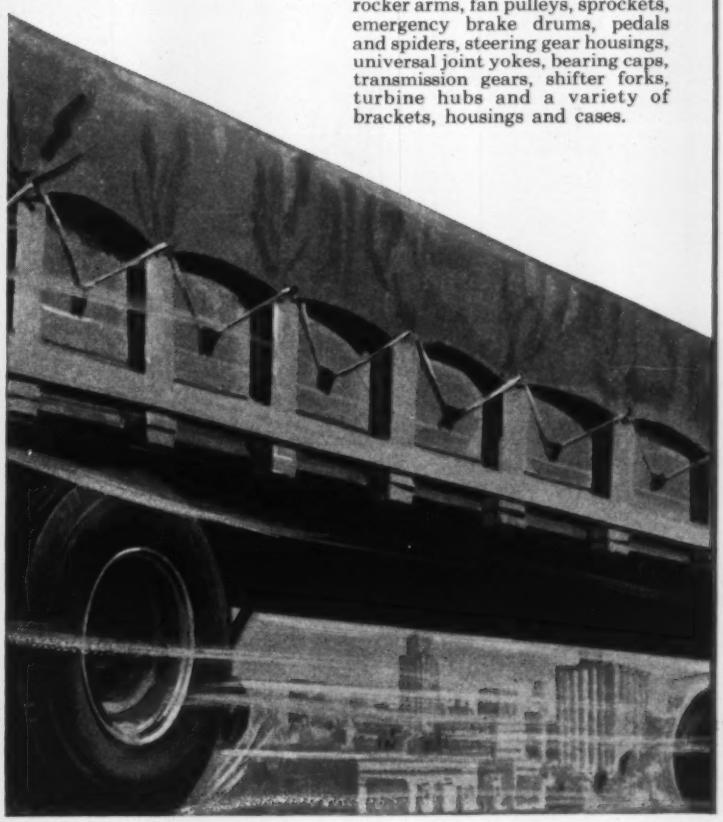
From the smallest cars to the largest trucks, all American vehicles rely on Malleable for a range of uses. In this tandem axle, for example, a total of 36 parts is Malleable.

Malleable differential carriers form the backbone of the rear axles on many new compact cars, as shown at the right above. Tubular steel extensions are pressed into the Malleable housing where they are "puddle" welded. Decisive factors in Malleable's selection were strength, economy, ease of machining and ability to be produced in a design that required a minimum of tooling expense.



The increasing conversion from other materials to Malleable castings for all kinds of parts from crankshafts to door hinges is adding momentum to the automotive industry's steadily increasing use of Malleable.

Among the many Malleable iron castings in this composite car are torsion bar arms and brackets, rocker arms, fan pulleys, sprockets, emergency brake drums, pedals and spiders, steering gear housings, universal joint yokes, bearing caps, transmission gears, shifter forks, turbine hubs and a variety of brackets, housings and cases.



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Eastern Malleable Iron Co., Naugatuck

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Chicago Malleable Castings Co., Chicago 43
Moline Iron Works, Moline
Moline Malleable Iron Co., St. Charles
National Mall. and Steel Castings Co., Cicero 50
Peoria Malleable Castings Co., Peoria 1
Wagner Castings Company, Decatur

INDIANA
Albion Malleable Iron Company, Muncie Division, Muncie
Link-Belt Company, Indianapolis 6
National Mall. & Steel Castings Co., Indianapolis 22

IOWA
Iowa Malleable Iron Co., Fairfield

MASSACHUSETTS
Belcher Malleable Iron Co., Easton

MICHIGAN
Albion Malleable Iron Co., Albion
Auto Specialties Mfg. Co., Saint Joseph
Cadillac Malleable Iron Co., Cadillac
Central Fdry. Div., Gen. Motors, Saginaw

MINNESOTA
Northern Malleable Iron Co., St. Paul 6

MISSISSIPPI
Mississippi Malleable Iron Co., Meridian

NEW HAMPSHIRE
Laconia Malleable Iron Co., Laconia

NEW YORK
Acme Steel & Mall. Iron Works, Buffalo 7
Frazer & Jones Company Division Eastern Malleable Iron Co., Solvay
Oriskany Malleable Iron Co., Inc., Oriskany
Westmoreland Mall. Iron Co., Westmoreland

OHIO
American Malleable Castings Co., Marion
Central Fdry. Div., Gen. Motors, Defiance
Dayton Mall. Iron Co., Ironton Div., Ironton
Dayton Mall. Iron Co., Ohio Mall. Div., Columbus 16
National Mall. and Steel Castings Co., Cleveland 6

PENNSYLVANIA
Buck Iron Company, Inc., Philadelphia 22
Erie Malleable Iron Co., Erie
Lancaster Malleable Castings Co., Lancaster
Lehigh Foundries Company, Easton
Meadville Malleable Iron Co., Meadville
Pennsylvania Malleable Iron Corp., Lancaster

TEXAS
Texas Foundries, Inc., Lufkin

WEST VIRGINIA
West Virginia Mall. Iron Co., Point Pleasant

WISCONSIN
Belle City Malleable Iron Co., Racine
Chain Belt Company, Milwaukee 1
Federal Malleable Company, Inc., West Allis 14
Kirsh Foundry Inc., Beaver Dam
Lakeside Malleable Castings Co., Racine
Milwaukee Malleable & Grey Iron Works, Milwaukee 46

These companies are members of the Malleable Castings Council

Pump Makers Fight Rising Costs

With costs going up for raw materials and labor, makers of pumps and compressors expect slimmer profits in '61.

But the majority are confident sales will top last year.

■ Pump and compressor makers will be battling a rising tide of increased costs for labor and materials this year. They face a continuing squeeze on profits, heightened by extensive price cutting in the industry.

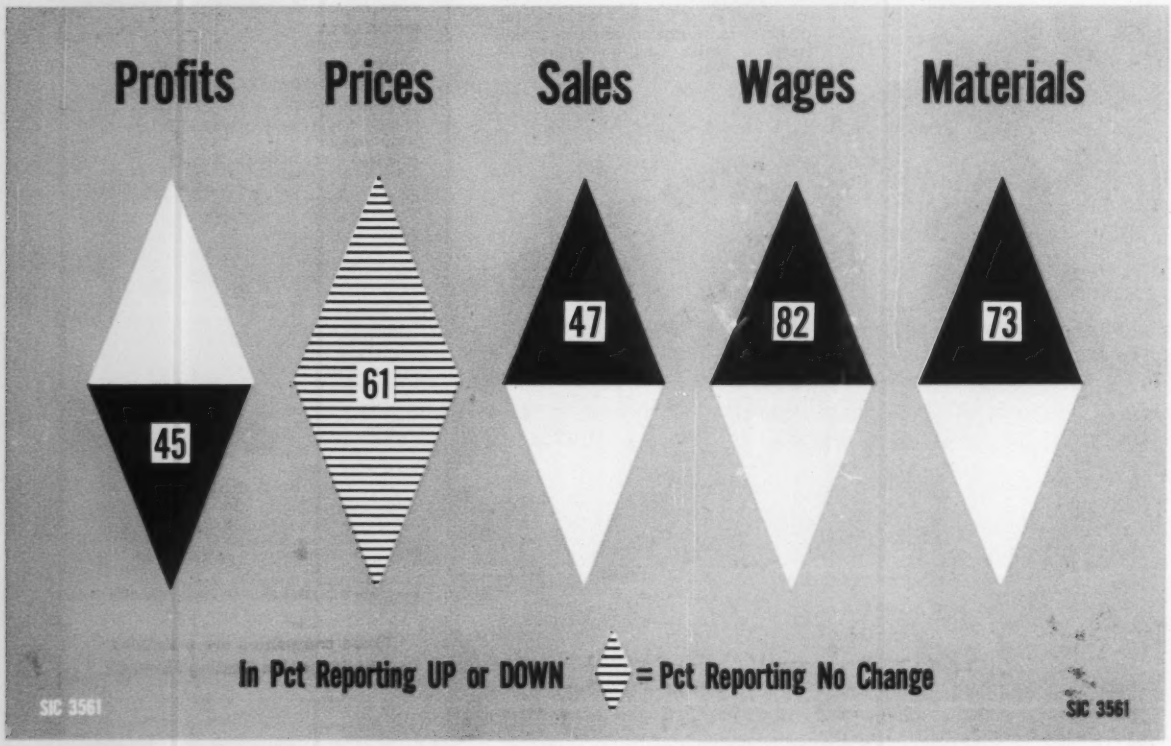
Yet the majority of manufacturers surveyed by The IRON AGE are confident this year will bring greater sales. However, the majority of the sample, which included about one-fourth of the industry, expect lower profits.

More Sales, Less Profit—Almost half of those questioned (47 pct) believe sales will increase this year over last year's levels. Nineteen pct expect lower sales with 34 pct predicting no change.

About the same number (45 pct) look for profit margins to decline this year. Twenty-four pct are counting on higher earnings. And 31 pct expect no change.

Rising wage costs are pointed out as an important factor in the profit pinch. Over 80 pct expect increased wage costs this year. Higher materials costs are forecast by 73 pct of those answering.

Higher Costs Are Expected This Year



Program for Action—But pump and compressor makers are going all-out to attack their problems. A variety of solutions are given to beat the profit squeeze. Generally, however, they boil down to this program: Harder selling, stronger efforts to cut costs, improved efficiency, new and better products, and diversification.

Although many forces are acting to pressure prices, the greatest number of manufacturers (61 pct) hope to keep selling prices the same in 1961. Thirty-one pct predict price increases and only 8 pct see any prospect of reductions.

Price Cutting—Right now, there is considerable price cutting by both domestic and foreign producers of pumps and compressors. Quite a few manufacturers believe the industry's excess productive capacity and high production are mainly responsible.

They also note this makes it difficult to finance capital improvements needed to turn out quality products at lower cost. Nevertheless, the industry seems determined to push ahead on these developments. They are looking for improved product designs, better methods of manufacturing, and ways to reduce machining and assembly time. By introducing better products and widening product lines, the manufacturers hope to stimulate sales.

Labor Costs Hurt—Surprisingly, foreign competition is not mentioned too often as a serious problem—at present. Increased labor costs are listed time after time as the main headache. Taxes are also singled out as a cause of the profit pinch.

SIC 3561

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	38 Pct	33 Pct
100 to 249	41 Pct	47 Pct
250 and over	21 Pct	20 Pct

Westinghouse Electric Corp.

What Industry Executives Say

■ "Our domestic and foreign competitors are cutting their sales prices to levels which discourage expansion and new production. Both of these injure employment. This situation shows no signs of improving and, in fact, could get very much worse. To maintain our employment level, it is important that our entire team put forth a prompt and continued major effort to effect every possible economy and come up with new ideas to help beat our competition on costs, quality, and service.

Continued

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2¾	x 2		x 2¼		x 3¾
	x 2¼		x 2½		x 4
3	x 2		x 2¾	4¾	x 2¼
	x 2¼		x 3		x 2½
	x 2½		x 3¼		x 2¾
3¼	x 2		x 3½		x 3
	x 2¼	4¼	x 2		x 3¼
	x 2½		x 2¼		x 3½
	x 2¾		x 2½		x 3¾
3½	x 2		x 2¾		x 4
	x 2¼		x 3		x 4¼
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	x 2¾		x 3½		x 2¾
	x 3		x 3¾		x 3
3¾	x 2	4½	x 2		x 3¼
	x 2¼		x 2¼		x 3½
	x 2½		x 2½		x 3¾
	x 2¾		x 2¾		x 4
	x 3		x 3		x 4¼
	x 3¼		x 3¼		x 4½

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"This means we must encourage our workmen to increase productivity, develop better methods and processes, eliminate waste, and reduce costs in every possible way. We must give them the tools to help them do a better job and lead them to use those tools most efficiently." James M. Hait, President, **Food Machinery and Chemical Corp.,** San Jose, Calif.

"Excess productive capacity and excess production has led to price cutting. Labor costs continue to increase, bringing increases in the cost of many purchased materials. Foreign competition has adversely affected selling of some of our products. But it is not as seriously affecting profit margins as much as price cutting and taxes. These will continue to have a greater adverse effect in coming years." Roy C. Ingersoll, President. **Borg-Warner Corp.,** Chicago.

"Possible remedies to the profit pinch might be lower production, new product lines, and a reduction in controllable costs." Walter F. Deming, President, **Deming Co.,** Salem, Ohio.

"Price cutting and taxes are the factors having the greatest effect on our profit squeeze. We feel inflation will have renewed influence and cause even further price increases and lower profits in the years to come." L. W. Darling, General Sales Manager, **Davey Compressor Co.,** Kent, Ohio.

"The cause of the earnings drop is lower activity by the industry during 1960. The remedy is diversifying and the hard sell." E. M. Freeman, President, **Freeman Co.,** Yankton, S. D.

"Price cutting is the principal problem. Increased efficiency of operations is part of the cure. It's likely prices will be increased in time." J. L. Ledeen, General Manager. **Ralph B. Carter Co.,** Hackensack, N. J.

"Biggest factors in the industry profit pinch are taxes, labor costs, and the industry's inability to modernize production equipment." R. A. Malcolm, President, **Hancock Machine Co.,** Findlay, Ohio.

"The principal cause of our profit squeeze is labor cost. Until unions become realistic, we see no solution to our problem." J. J. Fortune, Controller, **New York Air Brake Co.,** N. Y.

"I think labor costs are the dominant factor. And I am certain much is the inefficient use of expensive labor. We hope to rectify this situation during 1961." Robert C. Wyth, President, **Viking Pump Co.,** Cedar Falls, Iowa.

"Executives everywhere are increasingly concerned with a new kind of profit squeeze. This is caused, in part, by a variety of special deals and concessions, unusual terms, extraordinary services, long trade-ins and a shift in demand from high-quality to economy models with lower profit margins.

"In addition, many of the major industries are seriously plagued with over capacity and this problem is equally real, though not as obvious. Most companies—both large and small—have experienced real difficulty in keeping abreast of developments.

"The chief problems are price cutting and labor costs. The solutions: Work hard to get a fair price. Sell features of your equipment. Redesign products and automate for lower costs. A higher business level, nearer to capacity of the industry. Persuade labor leaders and union employees how essential it is to exercise restraint in driving up costs." W. H. Feldman, President, **Worthington Corp.,** Harrison, N. J.

"Every company should batten down its hatches to make sure that its total resources are being effectively applied toward achieving optimum objectives." Edward J. Green, Vice President—Planning and Marketing, **Westinghouse Air Brake Co.,** Wilmerding, Pa.

"The solution is tax relief and redesign for cost cutting." D. G. Lear, President, **Weinman Pump Mfg. Co.,** Columbus, Ohio.

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Expect Profits to Dip Lower

Price cutting, increased labor costs, and excess capacity will all act to lower earnings during '61, steel forgers say.

However, sales are expected to surpass or equal the levels of last year.

■ Steel forgers are looking for a good year in 1961. But they are not certain how strong sales will be compared with last year's.

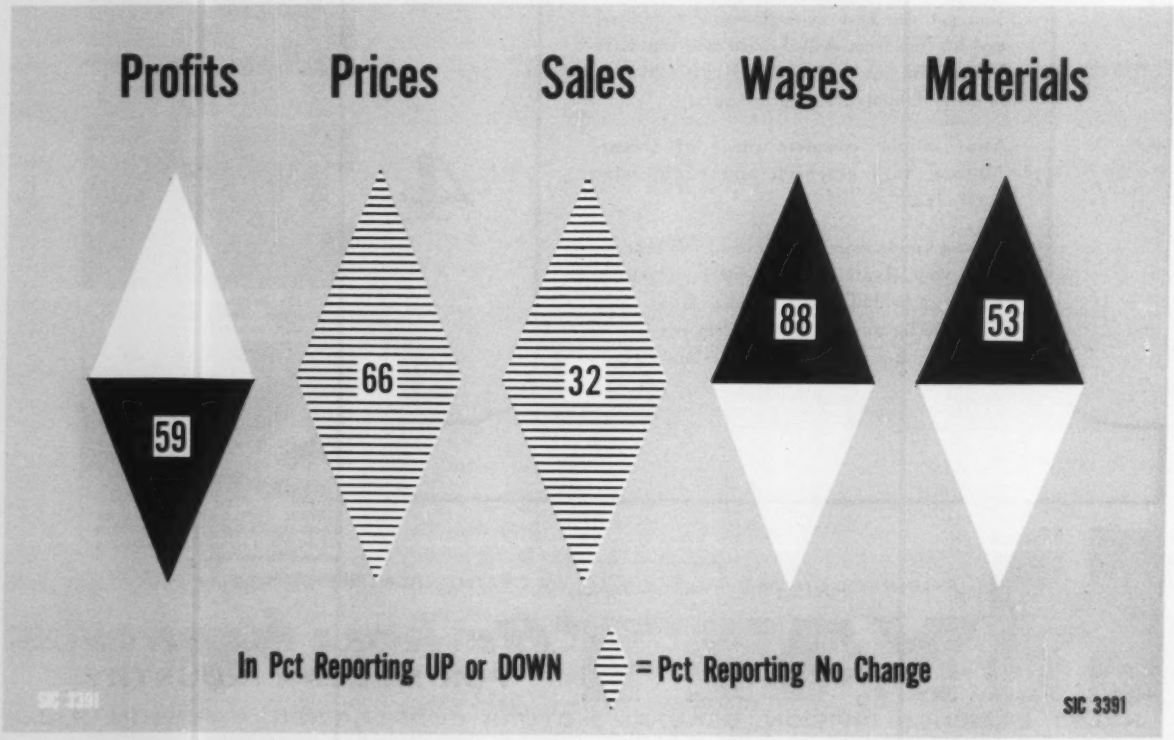
Among those surveyed by The IRON AGE for this issue—representing almost half of the industry—there's a wide difference of opinion on the level of sales in the new year.

Equally Divided — Thirty-four pct of those answering think sales will improve over '60. The same number predict they will go lower. And almost the same number (32 pct) expect them to be about the same in '61 as in '60.

However, there are no doubts about industry opinions on other prospects for this year. The largest number, 59 pct, expect profits to shrink. Only 20 pct count on increased profits. And a substantial portion, 21 pct, look for earnings to hold level with 1960 levels.

Price Problems — According to the forgers, prices are likely to hold stable this year. Almost 70 pct see no change over 1960 prices. However, 23 pct look for price increases.

Opinions Differ on Sales Prospects



A minority of only 11 pct envisions price reductions.

Price cutting, increased labor costs, excess capacity, and high taxes are generally blamed for the industry's problems. But management in steel forging plants is moving to meet these problems.

Some of the suggested remedies include: Modernizing production; cost reduction programs; tax reform; more low-cost, high-quality production; and harder selling.

Spotlight on Costs—The forgers are convinced cost control programs are needed to provide for needed modernization and improvement. But unless there's some effort to hold down wage costs the forgers are convinced their cost control measures will have trouble succeeding.

It's also hoped by many forgers that the government will move to liberalize depreciation allowances. This would permit them to plow more money into capital improvement programs.

But basically it comes back to the question of rising labor costs. Time after time those answering the survey labeled "labor costs" as the principal cause of the profit squeeze for the industry.

SIC 3391

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	32 Pct	30 Pct
100 to 249	38 Pct	35 Pct
250 and over	30 Pct	35 Pct

Midvale-Heppenstall Co.

What Industry Executives Say

Example Given—One manufacturer in an East Coast city points out the average wage for his company is $3 an hour, including fringe benefits. He then notes hourly costs to $1.01 for Belgium and Germany, 95¢ for the United Kingdom, 87¢ for The Netherlands, 84¢ for France, and 81¢ for Italy.

He observes his company is in direct competition with foreign manufacturers and has lost most of its business outside the U. S. as well as much of its business within the U. S.

■ "The main problems are labor costs and overhead costs. Also hurting is the industry's inability to modernize production equipment. The trend must be reversed by intense cost reduction efforts. There must be a modernizing of equipment through leasing. And a return to hard selling." H. J. Flinn, Executive Vice President, **Brewer Titchener Corp.,** Cortland, New York.

"All five of the points you name are causes for the squeeze on profit margins. They all must be met

Continued

head-on if our industry hopes to reverse the trend. We have got to learn to live in a straight-out, full-fledged, highly competitive economy. We must have low-cost, high-quality production, plus optimum sales at fair margins. Every modern technique of management will be required." Elmer W. Cress, President, **Buchanan Steel Products Corp.,** Buchanan, Mich.

"Price cutting is the principal cause. Increased volume of business will probably strengthen prices somewhat." H. C. Lackey, President, **Erie Forge and Steel Corp.,** Erie, Pa.

"Many factors contribute including labor costs, price cutting, taxes and foreign competition. This is a custom industry. Automation cannot be developed due to the lack of repetitive type of products produced." William F. Finkl, President, **A. Finkl Sons Co.,** Chicago.

"I think the principal causes for reduced profit margins in our industry are price cutting, labor costs, and the inability to modernize plant equipment." Alexander G. McWilliams, President, **McWilliams Forge Co., Inc.,** Rockaway, N. J.

"It seems to me the stand has to be made by the larger industries. The pattern is set there." Samuel Lee, President, **Schmitt Steel Co.,** Portland, Ore.

"Profits in our industry are being injured by price cutting and labor costs. Again, as in past periods of slow industrial activity, many forging companies are resorting to the practice of slashing and, in some instances, eliminating the proper and traditional charge for dies.

"Customarily, forging prices are refigured annually to give effect to material and labor increases. With steel prices remaining unchanged and with business activity slow, this year's increased labor costs have been absorbed and not passed on." Gordon R. Walker, President, **Walker Forge Co.,** Racine, Wis.

"Industry capacity is much larger than demand. This results in serious price cutting. And this, coupled with continued cost increases for labor and raw materials, brings a serious profit squeeze." C. H. Smith, Jr., President, **Steel Improvement Forge Co.,** Cleveland, Ohio.

"The two principal causes of the profit squeeze are labor costs and taxes. Possible solutions are: Intensive organization of industry in the direction of holding the line on wages, increasing production with no additional labor costs (excepting the capital costs of improved equipment and automation), and revising contractual agreements that limit management's right to manage.

"In addition, we need to revise and redesign the tax laws to create a healthy business condition." G. H. Fromer, Vice President and General Manager, **Atlas Drop Forge Co.,** Lansing, Mich.

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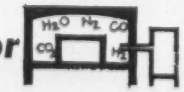
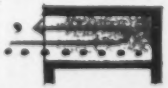
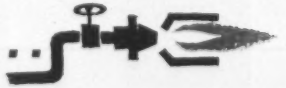
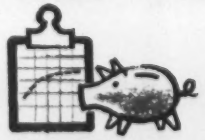
IF you want to HEAT metal . . . . (melting, forging, brazing, sintering or treating) . . . . ferrous, nonferrous or exotic . . . . whether your parts travel one at a time **in batches** **or in droves** **in a straight air atmosphere . . . . or in a protective atmosphere** **or**  **an upgrading atmosphere in & out**  **down & up** **straight through**

or in a combination with manual operation **or automatic** **AND if you want the economy of standard equipment the least costly fuels . . .**  **PLUS known production rates and pre-rated operating costs** 

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Steel Founders Face Problems

There's no excess of optimism among steel founders. Most don't expect a strong sales upsurge.

The profit pinch bothers many, but they are looking for ways to solve it.

■ Many steel castings makers are concerned about the industry's capacity in relation to present demand.

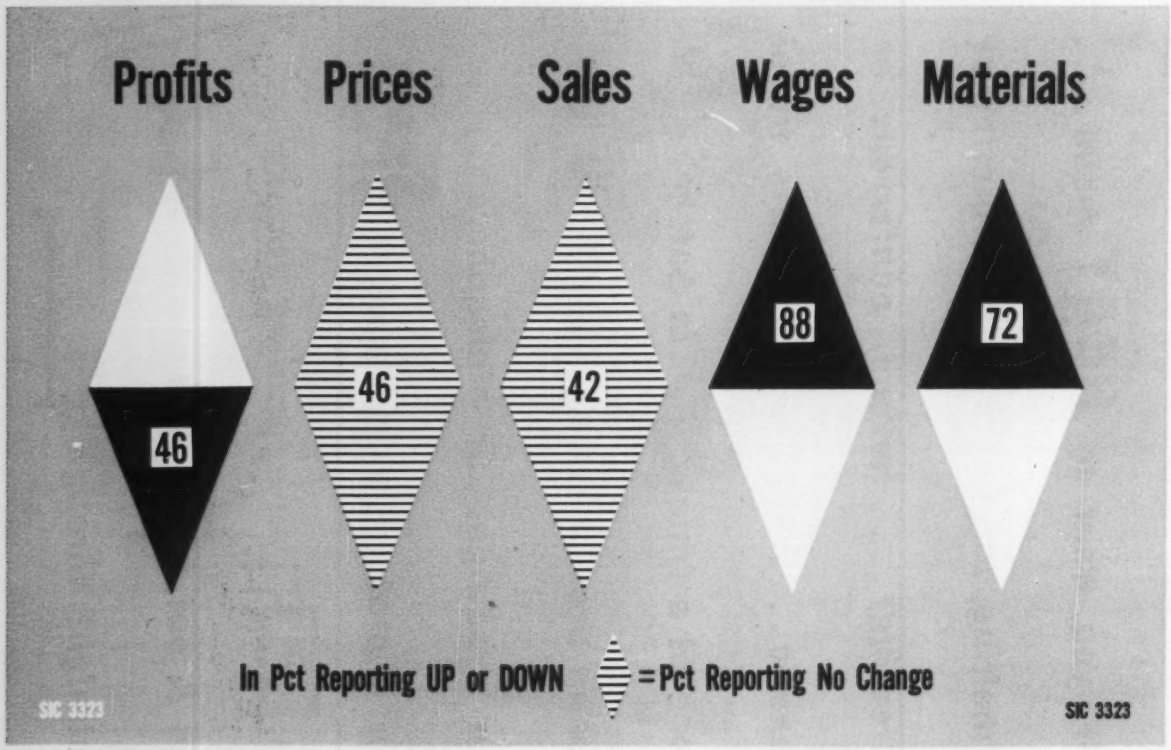
For the coming year they see this surplus of supply over demand as a problem. But they are not giving up on the future.

Because of these problems there's no excessive optimism in the industry about the outlook for '61. Those surveyed by The IRON AGE included plants representing 40 pct of the employment in the steel castings industry. Those responding looked for these developments in 1961: No substantial change in sales. The majority, 42 pct, believe shipments will stay at about the level of 1960. Thirty-five pct expect improved sales, while 23 pct are concerned about lower sales.

Profit Decline Expected—A continued decline in earnings is also foreseen. Almost half those who replied look for lower profits in '61. No change is predicted by 35 pct. Only 19 pct count on profit improvement this year.

Despite this, the majority believe

Sales Should Stay Close to '60 Levels



prices will not rise. This opinion is held by 46 pct, with 35 pct expecting price increases, and 19 pct looking for reductions.

Adding pressure to prices will be increased wage costs, anticipated by 88 pct, and greater materials costs, expected by 72 pct.

Counterattack—To offset these problems, the castings makers are relying on greater selling efforts, modernization, cost-cutting programs, and improved depreciation allowances.

They point out, however, that the industry's excess capacity is not helping in the present sales slowdown. It's estimated that the industry has not operated much above 50 pct of capacity in the last 20 months.

More successful, they maintain, would be reducing tonnage, practicing cost-cutting, and renewing selling efforts to convert new customers to the casting process.

Other remedies suggested include better materials handling, greater mechanization, more restraint by labor unions in wage negotiations, product redesign, and development of new services for industry and the defense program.

SIC 3323

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	13 Pct	5 Pct
100 to 249	37 Pct	39 Pct
250 to 499	30 Pct	40 Pct
500 and over	20 Pct	16 Pct

American Steel Foundries

What Industry Executives Say

Steel Prices Watched—A big factor in deciding the industry's price and competitive position will be the course of basic steel prices. The founders closely watched the steel industry last year to see what price increases, if any, would follow the signing of new labor contracts.

They are still watching basic steel for any signs of a rise in steel prices. Any changes would have an immediate effect on the cost of castings. Domestic price rises for castings, many feel, will only further increase sales by foreign producers.

"The main cause is price cutting due to desperation attempts to attain volume in an industry that has double the capacity to supply the needs of its market at present.

"Also, labor costs amounting to 50-60 pct of production costs, increase almost automatically as contracts are based on basic steel wage patterns or area rates. We are a custom industry and increased wage costs are almost impossible to offset by automation or by major improvements in technology.

Continued

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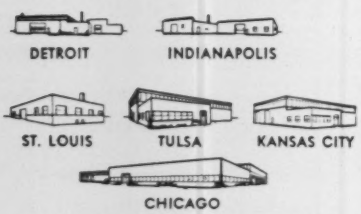

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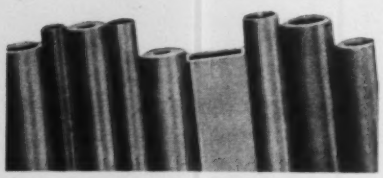


"The delivery dates required are short. Customers don't want to carry inventories. Higher foundry costs result due to uneconomic scheduling. Customers demand and get fringe benefits at no extra costs (e. g., extra finishing, inspection, tolerances, etc.)" D. R. Francis, President, **Alloy Steel Metals Co.**, Los Angeles.

"The worst problems are increasing labor costs together with price cutting. Competition is very high in a sick industry." Albert Davis, Assistant to the President, **Electrocast Steel Foundry Co.,** Cicero, Ill.

"The industry's inability, especially among medium to small companies, to obtain depreciation dollars to replace machinery that has become obsolete. This then holds down the productivity of the employee in these companies. Large companies have immense and long-range borrowing capacity that eliminates them from this difficulty. Their bad days will come much later. We must get Congress to give relief to smaller-type industries on this depreciation problem.

"The principal cause of the earnings decline is the inability to modernize. An improved tax structure and better depreciation allowances are needed." J. H. Barker, Assistant Secretary-Treasurer, **Mountain State Steel Foundries,** Parkersburg, West Va.

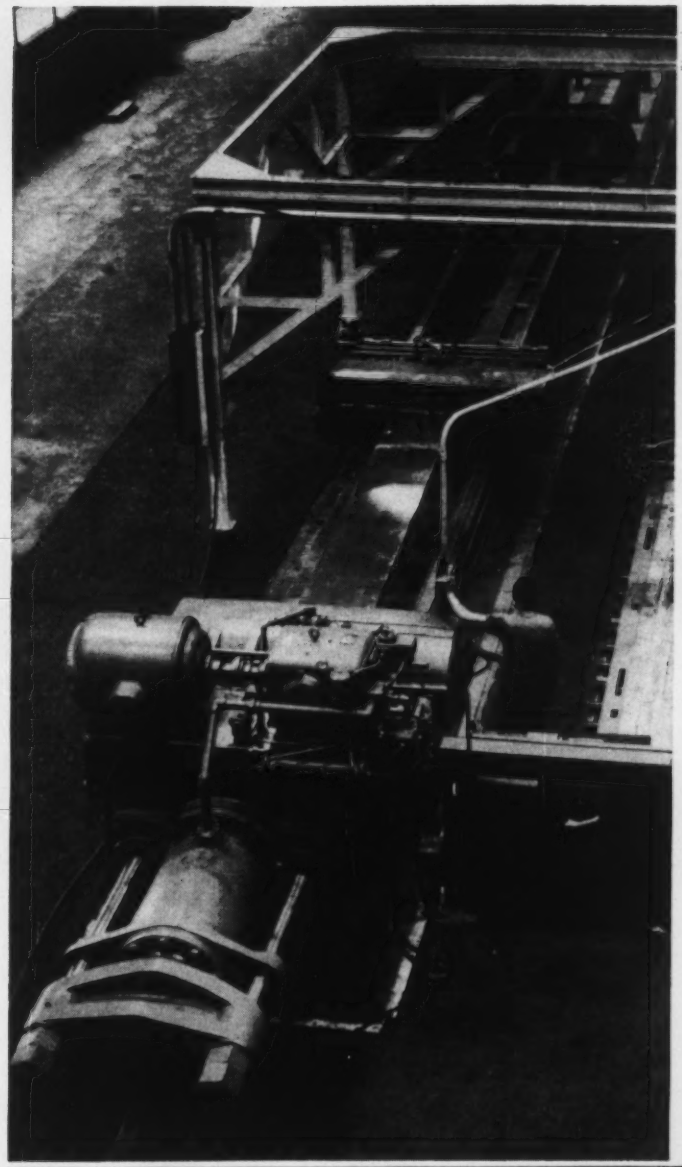
"Price cutting along with increased labor costs are the main reasons for reduced profits. I would suggest better cost procedures in foundries to revise the false policy pursued. Also, there must be a better realization of what price cutting means to the industry as a whole."—Paul H. Stuff, President, **Ross Meehan Foundries,** Chattanooga, Tenn.

"We have recently raised prices which should tend to balance our higher labor costs. Material costs will go up with increases in freight. The people in the industry tend to panic and cut prices to get business. It might be better to retrench and operate at lower tonnages than try to secure tonnage. That way everybody in the industry loses. It is better to have sales people spending time persuading people to convert fabricated parts to casting, rather than have them out cutting prices." J. W. Kaufman, Foundry Manager, **Wilkerson Nutwell Co.,** Fresno, Calif.

"We undertook an extensive modernization and expansion program in our steel foundry which was completed in mid-1960. As yet we have not been able to generate sufficient additional business to warrant this expansion. But we are still optimistic about 1961. And we believe with increased sales effort we will be able to justify this expansion program. In our opinion, 1961 will be a year of 'separating the men from the boys' in the steel foundry industry." R. L. Gilmore, President, **Superior Steel & Malleable Castings Co.,** Benton Harbor, Mich.

"Price cutting starts with the prime customer selling too low and a chain reaction of suppliers in turn selling too low to relieve their customers of losses. This chain reaction must be reversed by the suppliers charging a fair price so the prime customer realizes he, too, has to charge a fair price." W. J. Shive, Vice President and Sales Manager, **Sterling Steel Casting Co.,** Monsanto, Ill.

"The foundry industry has operated for the last 20 months at approximately 50 pct of capacity. There is a compelling reason to believe the industry possesses a very substantial excess of capacity over demand. This has led to, and will continue to create, price cutting, chaotic market conditions, and instability. Naturally, high taxes, accelerated labor costs, and unrealistic depreciation policies, will also dampen the willingness to assume business risks." R. W. deWeese, Vice President, **Esco Corp.,** Portland, Ore.



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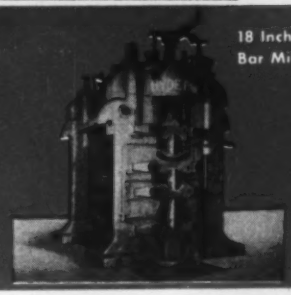

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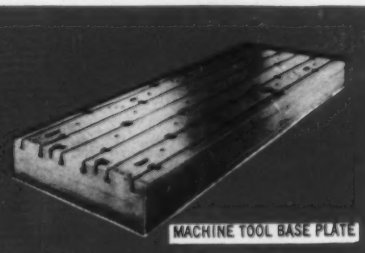

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Will Welding Profits Improve?

Industry opinion is almost evenly divided on whether earnings of welding equipment makers will improve in 1961.

But most manufacturers look for improvement in sales.

■ Welding equipment makers are divided on whether 1961 profits will be higher or lower than last year's. Almost as many manufacturers think earnings will drop, 37 pct, as expect them to improve, 41 pct. A relatively large group of 22 pct expect profits in '61 to about equal those of '60.

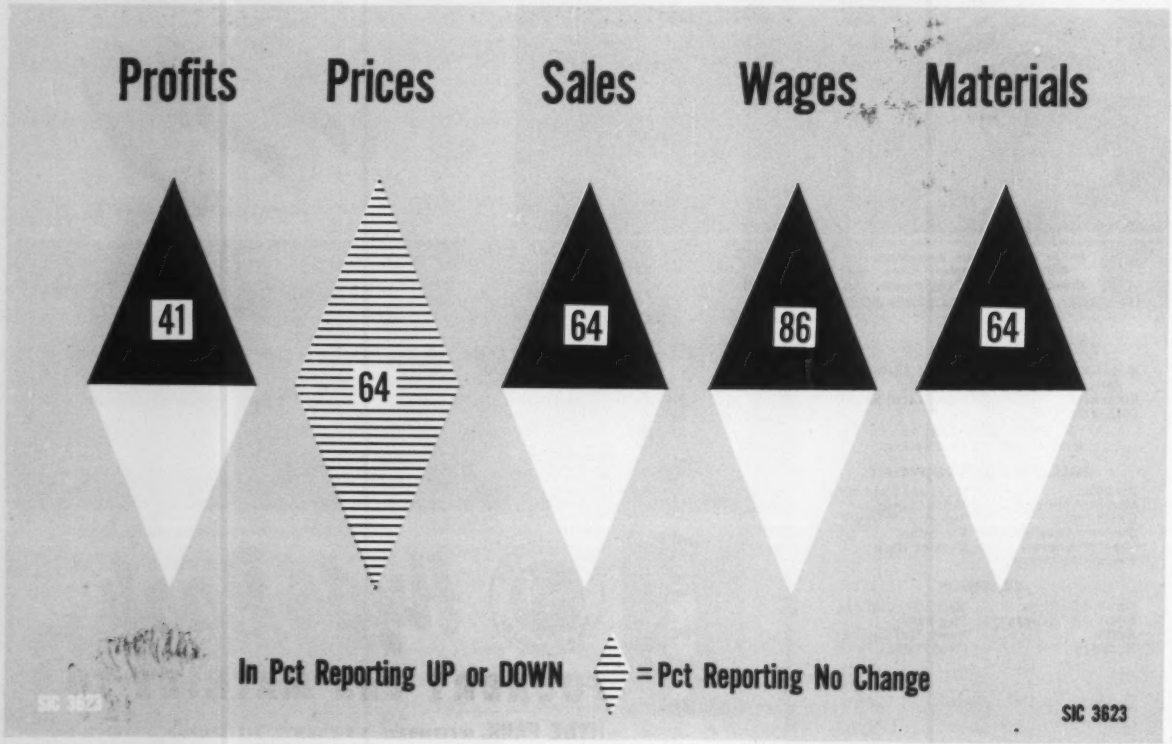
On other prospects for the new year, however, the manufacturers are pretty well agreed. Among the replies received by The IRON AGE from a group representing over 70 pct of the industry's employment there are these conclusions:

Sales Improvement—The majority of equipment makers, 64 pct, look for improved sales in 1961. Fourteen pct are worried about a decline from 1960 sales levels. Another 22 pct believe sales in '61 will not change much from those of '60.

On prices, the majority, 64 pct, see little change this year. Increases are expected by only 27 pct, with 9 pct seeing some price reductions. Rising costs are also anticipated by most of the manufacturers. Over 85 pct believe wages will rise, with more than 60 pct looking for boosts in material costs.

High Wages Blamed—The manufacturers are particularly vocal on

Greater Sales in '61, But Slimmer Earnings



the question of rising labor costs. Many believe that such increases, especially when selling prices can't be raised, are the main factor in pinching profits. Also, some note, this hinders U. S. producers in competing with foreign producers.

The only sound answer, as those surveyed see it, is a rigid, intelligent program to cut costs and improve production methods. The problem of getting the necessary funds for modernization and expansion is one most producers face.

Battle Against Costs—But they are convinced that only with such cost-saving methods will they be able to hold or stretch present profit margins. Even with this, some believe price increases are necessary.

As yet, foreign competition is not given as an important threat to the industry. It's noted that overseas sellers have not been a strong factor in the U. S.—as yet. However, foreign suppliers have taken away some American business in other areas, including the Latin American markets. And if the cost problem persists, more sales losses to foreign competitors are predicted.

More Sales Will Help—Welding equipment makers are also convinced an increased volume of sales will do much to solve their problems. When demand improves and sales increase, they say, the industry should regain some of its vigor.

The industry has always been astute about coming up with better and faster equipment, new techniques and methods. There is no reason to believe these trends will not help in the future.

If they are combined with the industry's desire to closely control costs, the outlook for domestic welding equipment makers cannot help but improve.

SIC 3623 +

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	37 Pct	41 Pct
100 and over	63 Pct	59 Pct

What Industry Executives Say

■ "All these factors are contributing to the profit squeeze in our industry—none is the sole cause of it. There is no question but that price cutting enters into it. Labor and material costs also have a direct bearing, especially when we can't raise the prices on our products.

"Competition in our industry is so keen for the amount of business available that competitors are perfectly willing to cut prices to get business. Therefore, we would lose more business if we attempted to

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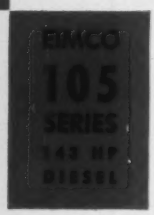

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raise prices to keep pace with increasing costs. Our feeling is that our only salvation is developing more and more cost-saving methods so that we will be able to at least hold the profit margin or possibly increase it." Ralph M. Leitzel, Vice President and Treasurer, **Federal Machine & Welder Co.,** Warren, Ohio.

"The principal cause of the profit squeeze is non-justifiable wage raises in the metalworking industry. These, in turn, cause increases in all components from switches to capacitors. Aluminum is a potent factor in our costs. Costs which can be lowered by more efficiency are more than offset by the demands of labor." Louis Herrine, Purchasing Agent, **Forney Mfg. Co.,** Fort Collins, Colo.

"Foreign competition. We must have a realistic approach from our customers on this competition or eventually face complete dependence on foreign suppliers." Q. T. Wiles, President, **Good-All Electric Mfg. Co.,** Ogallala, Neb.

"There is only one problem—the industry does not have enough volume." H. W. Beronius, President, **Welding Machines Mfg. Co.,** Swift Ohio Corp., Detroit.

"Don't think your work around here has gone unnoticed, Bailey, but I'm still willing to give you another chance!"

Tomorrow's Electric Motors are available today . . . .

COMPUTER

DESIGNED and PROVED

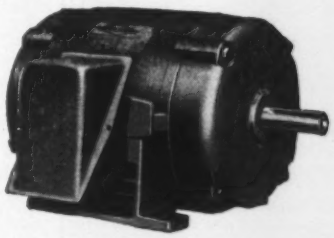
BEST POWER FOR THE STANDARD OR THE UNUSUAL MOTOR APPLICATION . .

IMPERIAL

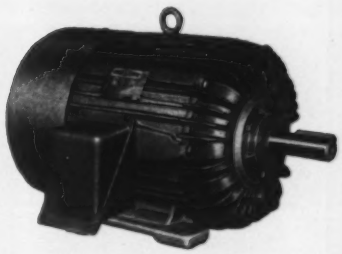
Modern as the missile age . . . Imperial electric motors are created with a background of more than 70 years of industrial drive experience.

Now, through the use of electronic computers, multiple-design review is made possible in advance of production. Optimum performance is assured while delivery of special-purpose designs is speeded.

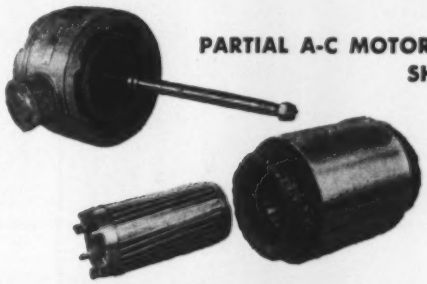
For standard NEMA motors and for motors to meet unusual drive requirements, you will do better with Imperial. Write for bulletin covering *The Imperial Line* of integral horsepower motors, generators and motor-generator sets for every application.



DRIP-PROOF A-C MOTOR—*Today's Best Buy for Most Applications—Ratings from 1 to 200 Hp.—Designs Include Flange and Face Types, Multi-Speed, etc.*



TOTALLY-ENCLOSED, FAN-COOLED A-C MOTOR *Provides Dependable Operation Under Abnormal Conditions — Also Available in Explosion-Proof Design—1 to 100 Hp.*



PARTIAL A-C MOTOR . . .
SHELL-TYPE SHAFTLESS MOTOR *. . . Other Special or Specific Types . . . Provide Maximum Power in Minimum Space . . . Blend with Basic Design of Machines.*

IMPERIAL **ELECTRIC COMPANY**

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HIGH GRADE • INTERMEDIATE • BRASS SPECIAL

Now!

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▶ New Member Of The Famous Line of St. Joe Metals

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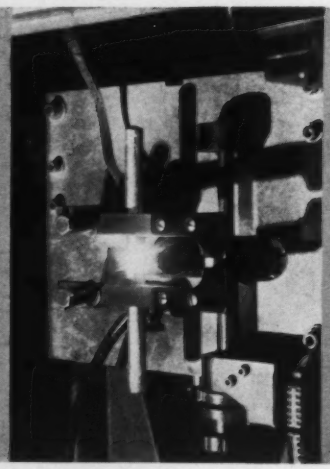
Sample To Complete Analysis in 10 Minutes



To maintain St. Joe zinc's unmatched purity on a continuous basis, an operator casts samples (shown 1/5 actual size) and sends them via air tube to the Baird-Atomic Direct Reading Spectrometer. There a technician places the samples in the Spectrometer's electrode holders. Extremely high voltage creates an arc across the electrodes. As elements are vaporized, light from the arc is broken into element lines of varying light energy.

. . . And This Is How It's Done

This energy, directed to photomultipliers (photo-sensitive electronic tubes), is converted to electrical energy which actuates pre-calibrated dials that indicate elements directly IN PERCENTAGES! In five minutes the zinc sample can be completely analyzed for iron, lead, cadmium, copper, aluminum, indium, tin, antimony, silicon and magnesium. Two minutes later by return tube casting room operators know whether or not they are holding critical purity specifications.

• PRIME WESTERN • "TAILOR-MADE" GRADES

ZINC

99.99+%

St. Joe's modern research laboratories developed the process — St. Joe's rigid, scientific quality control maintains consistent guard over the product — St. Joe 99.99+% Zinc.

Every shipment of St. Joe 99.99+% Zinc is backed by St. Joe's reputation of nearly a century as a supplier of quality metal to American Industry. Consistent metal from St. Joe means consistent results in die-casting.

ST. JOSEPH LEAD COMPANY

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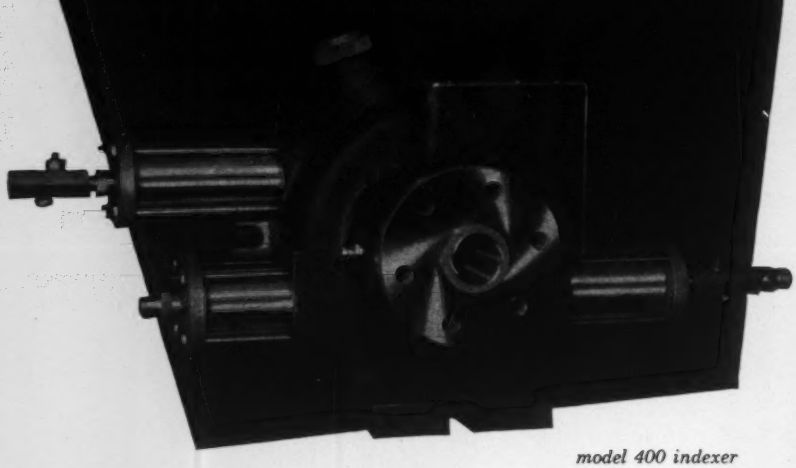
For speeding precision production

AUTOMATE

with

Erickson Indexers

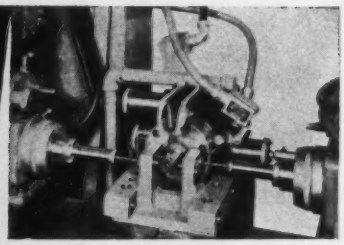


model 400 indexer

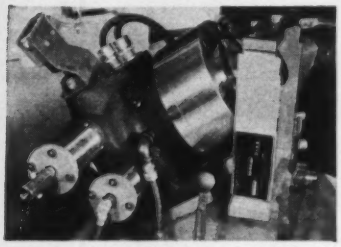
Perhaps these actual applications of automation will trigger your imagination . . . show you how Erickson Indexers can help you smash bottlenecks in your own production operation.

You can interlock them into production setups with microswitches and solenoid valves. And with Erickson Indexers you automatically get consistent positive positioning within 2 minutes of a degree . . . repetitive accuracy in low "tenths" of a thousandth.

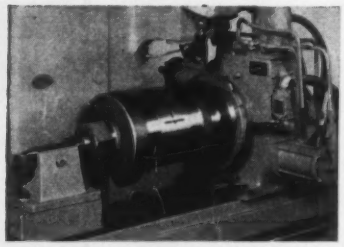
Speed to keep lines humming . . . accuracy to banish rejects . . . long life to slash maintenance and capital investment—all add up to Erickson Indexers. A-1562A



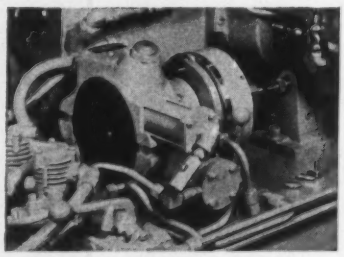
Automatic drilling of cross holes being done on Erickson Model 400 Speed Indexer with air cylinder and Expanding Drawbar Mandrel. Indexer equipped with interlock limit switches.



Angular drilling in jet part held in air operated collet chuck on Erickson indexer operating automatically. Entire fixture designed and built by Erickson.



Using end-clamping for half bearing, machine mills 8 oil grooves then skip indexes back to starting position for next part.



Milling four and six flats on needle valve part. Owing to size, part is placed in tail stock head-first, and tail stock then positions it in chuck and retracts.

ERICKSON TOOL COMPANY

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COLLET CHUCKS • EXPANDING MANDRELS • AIR-OPERATED CHUCKS • FLOATING HOLDERS • TAP CHUCKS
• AUTOMATIC INDEXING • MASTER SPACERS • DIAPHRAGM CHUCKS • PUSH-ON ARBORS • QUICK-CHANGE HOLDERS
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• BORING BARS • SPADE DRILLS • RECESSING TOOLS

How to Use "Steel Consumption" In Your Market Planning

Throughout metalworking, the pattern of steel product use by various industries is a key tool for market planners.

Here's a study showing past and projected consumption of six steel products in 15 states by major metalworking industries.

■ Many a company has found a simple but rather accurate way of projecting future sales and checking past performance. The basic tools are easy to come by: (1) A customer list coded by each customers' principal Standard Industrial Classification (SIC); (2) a table showing the company's total sales to each major SIC group—a simple IBM tabulation derived from the coded customer list; (3) further breakdowns by sales areas, states or regions.

These lists are interesting. But to be useful they have to be related to something specific, like total use of the company's product in a given year. Sometimes this is published in the Census of Manufactures of the U. S. Bureau of the Census. But more often than not such information is several years old when it is issued. This can't be avoided because of the size of the job the Census Bureau has.

Next Best—The next best thing is to find a correlation between sales of a company's product and some data that are fresh. And not only fresh, but in an area where the next six months' performance can be predicted with a fair degree of accuracy.

This is why The IRON AGE commissioned Herman B. Director Associates, Washington, D. C. to prepare the tables on the following pages. They show two things: (1) Estimated 1960 consumption by metalworking of six major steel products in the 15 states that chew up about 85 pct of all the steel used by the U. S. metalworking industry; and (2) an estimate of first half 1961 consumption.

The reasons for selecting steel consumption for this marketing tool were:

(1) The American Iron and Steel Institute reports steel shipments monthly by 21 "industry" categories. Herman B. Director Associates has developed formulae for converting these 21 categories into Standard Industrial Classifications so they'll be useful to most marketing people.

(2) More metalworking companies can correlate their sales with steel sales than with any other product. Steel, then, is the best common denominator.

(3) The data are fresh. Computations start with the latest Census of Manufactures. This is updated by monthly steel shipment reports and constantly modified and cross-checked by the latest figures on specific industries from both industry and Census Bureau sources.

(4) They can be projected with a fair degree of accuracy. The first of these studies was published Jan. 7, 1960. Its overall accuracy was 91.9 pct.

(continued)

The Forecast: How Accurate?

The first-half 1961 steel consumption forecast shown on the following pages uses the same techniques employed on the IRON AGE 1960 forecast.

The 1960 forecast had an overall accuracy of 91.9 pct. One area was within 2 pct.

■ The executive who must base at least part of his planning on statistical projections wants the answer to one question: How good are the figures?

There is a difference between an opinion survey in which people are asked what they expect in the year ahead and one which cites specific figures. The former seeks an accurate reflection of opinion prevailing at a given time; as long as the sample is representative the opinion will be too.

Computers Help—The latter demands detailed study of industry, geographic and basic economic trends, backlogs and inventories. And all, in this case, in specific tonnages. Computers and tabulating machines are available to refine the data—but it must be adjusted by the experience and foresight of a relatively small group.

The techniques used to develop the first-half 1961 forecast data on the following pages are the same as those used last year for a 1960 forecast (IA Jan. 7, 1960, p. 281).

Small Problem—The prior year's consumption, corresponding to the 1960 estimate on these pages, was less of a problem. Most of the 1959 data were on hand when the tables were prepared in 1959.

How did the forecast compare with the facts?

Projection Required—The 1960 estimates were based on anticipated levels of activity for the first half of that year. The first quarter was a period of inventory-building and fairly high industrial activity.

The second quarter marked the start of large-scale inventory withdrawal. In that period inventories built up in the first quarter were used up. Also, an extra million tons of the products covered in the forecast were withdrawn from inventories by steel users.

Adjust for Warehouses — The American Iron and Steel Institute's form AIS 16 shows actual shipments to steel consuming industries during the first half of 1960. These figures, adjusted for service center shipments to steel users, can then be compared with the forecast. The table on this page shows the results.

In terms of total shipments, the forecast was within 91.9 pct of the actual shipments to these industries.

Other Categories—Seven of the major classes including "All Other" were more than 85 pct accurate. Two fell between 80 and 85 pct and two were less than 70 pct accurate.

In the major consuming industries the forecast was accurate enough for use as a marketing tool.

Failure to come closer on tractors and farm machinery was because production in this field fell far below estimated demand. Actual production was less than 70 pct of what had been estimated by most industry sources. The Dept. of Commerce had in fact estimated a 5 pct increase in tractor and farm machinery output.

Fact vs. Forecast

A comparison of last year's (Jan. 7, 1960) forecast with actual shipments for the first half of 1960, in net tons.

SIC Code	Consuming Industry	Forecast	Fact	Pct Accuracy
344	Structural metal products	4,350,618	4,171,270	95.7
352	Tractors and farm machinery	1,146,274	834,094	62.6
353	Construction and mining machinery	441,180	379,810	83.8
354	Metalworking machinery	403,191	484,384	83.2
356	General industrial machinery	1,287,808	1,303,357	98.8
3621	Electrical appliances	1,180,137	1,072,926	90.0
371	Motor vehicles and equipment	8,559,216	7,552,550	86.7
372	Aircraft and parts	94,565	87,430	91.8
373	Ships and boats	375,180	283,532	67.7
374	Railroad equipment	664,920	743,808	89.4
	All other	4,343,523	4,223,018	97.1
	TOTAL	22,846,612	21,136,179	91.9

To Use These Tables:

Marketing executives consider the type of data on this and the following seven pages one of the most useful of all planning tools. The steel industry financed a study on this type in 1957, based on the 1954 Census of Manufactures. A year ago The IRON AGE published data in the form used here (IA Jan. 7, 1960, p. 281).

These studies report on six major steel products in the 15 states that use about 85 pct of the nation's steel. Since they are designed for use by metalworking they embrace only steel used by that industry.

Note too that they are set up by Standard Industrial Classifications (SIC) because most companies use SIC data as a base for their market planning work.

One reported use of the data published in January 1960 was in combination with The IRON AGE quarterly survey of capital appropriations. That survey is sponsored by The IRON AGE and conducted by the National Industrial Conference Board. The result of this combination can be a rather useful market planning tool.

Here is another method—and probably the most widely used one—of putting these data to work:

Many companies now have their customer lists coded by SIC. This permits coding sales on an SIC basis.

The next step is to see if there is a relationship between sales to various industries and their consumption of one of the steel products shown here. For this part of the study, use 1960 steel consumption data.

If that relationship is close the steel consumption forecast for the first half of 1961 can then be used to spread expected sales volume by states.

The 1960 consumption data has another marketing use. Where there's a good correlation between a company's sales and steel use in a given state, management can check each sales district against a norm. In this way sales effort and expense can be adjusted more closely to the market potential.

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CALIFORNIA Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mos.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mos.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mos.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mos.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mos.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mos.)
342	Cutlery, tools and hardware	51	15	2	1	2	1	1	1	1	1	1	1
343	Heating, and plumbing equipment	27	6	4	2	4	2	2	1	2	1	1	1
344	Structural metal products	19	9	2	1	2	1	1	1	1	1	1	1
346	Metal stamping and coating	21	7	1	1	1	1	1	1	1	1	1	1
3469	Lighting fixtures	5	2	1	1	1	1	1	1	1	1	1	1
347	Metal products, n.e.c.	2	1	1	1	1	1	1	1	1	1	1	1
351	Engines and turbines	7	4	2	1	2	1	1	1	1	1	1	1
352	Tractors and farm machinery	35	20	3	2	3	2	2	1	2	1	1	1
353	Construction and mining machinery	11	5	2	1	2	1	1	1	1	1	1	1
354	Metalworking machinery	4	2	1	1	1	1	1	1	1	1	1	1
355	Special industry machinery, n.e.c.	4	2	1	1	1	1	1	1	1	1	1	1
356	General industry machinery	2	1	1	1	1	1	1	1	1	1	1	1
357	Office and store machines	1	1	1	1	1	1	1	1	1	1	1	1
358	Service and household machines	4	2	1	1	1	1	1	1	1	1	1	1
359	Miscellaneous machinery parts	26	13	3	2	3	2	2	1	2	1	1	1
361	Electrical industrial apparatus	46	23	5	3	5	3	3	2	3	2	1	1
362	Electric appliances	5	3	1	1	1	1	1	1	1	1	1	1
363	Engine electrical equipment	2	1	1	1	1	1	1	1	1	1	1	1
364	Communication equipment	2	1	1	1	1	1	1	1	1	1	1	1
365	Motor vehicles and equipment	30	15	4	2	4	2	2	1	2	1	1	1
366	Aircraft and parts	28	14	4	2	4	2	2	1	2	1	1	1
371	Ships and boats	4	2	1	1	1	1	1	1	1	1	1	1
374	Railroad equipment	2	1	1	1	1	1	1	1	1	1	1	1
375	Motorcycles and bicycles	2	1	1	1	1	1	1	1	1	1	1	1
	TOTAL CALIFORNIA	311	155	41	25	41	25	25	16	25	16	13	8

CONNECTICUT — Estimated consumption of six major steel products for 1960 & half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	3006	1455	13796	6567	383845	192111	717288	357221	22943	11059	2732	1347
343	Heating and plumbing equipment	2660	1256	40	19	110113	52664	209655	98112	11435	54666	189	89
344	Structural metal products	15968	7904	12964	6249	53411	26117	55733	25977	5150	24882	168	81
346	Metal stamping and coating	60	31	726	379	103116	53995	234911	120744	2844	13992	566	182
3471	Lighting fixtures	159	87	11125	6119	279	135	54	136	1	1	1	1
3499	Metal products, n.e.c.	8887	4600	29029	15182	151453	72235	103300	47933	247	1363	316	162
3511	Engines and turbines	1434	783	133	72	2465	1355	158	87	84	38	27	15
3522	Tractors and farm machinery	209	105	868	430	3133	1555	138	67	18	10	2	1
3533	Construction and mining machinery	889	392	789	341	37	16	7	3	184	92	2	1
3544	Metalworking machinery	12977	5840	8649	3982	98844	44468	125386	56422	676	304	98	44
3555	Special-industry machinery, n.e.c.	5822	2835	2814	1292	21773	10058	28644	13772	720	352	885	431
3566	General industrial machinery	23944	12738	3551	1907	102133	53811	68011	35376	3585	1165	181	91
3577	Office and store machines	236	109	1617	736	4050	1993	30311	13795	2712	1237	79	36
3588	Service and household machines	1032	481	857	388	32777	15550	13327	6104	2455	1161	225	104
3599	Miscellaneous machinery parts	5599	3079	13782	7580	1555	8707	2293	1014	2031	1111	45
3601	Electrical industrial apparatus	3625	1976	38997	21332	85904	46664	212066	115557	18683	10199	1250	564
3621	Electrical appliances	1112	506	2792	1262	92966	42399	65834	29691	68899	31600	16	7
3641	Engine electrical equipment	354	190	230	126	479	262	1191	655	105	58	98	44
3656	Communication equipment	130	72	142	78	1622	889	3388	1866	6	3	16	9
3711	Motor vehicles and equipment	684	376	2015	1108	37911	20885	14122	7773	719	395	2085	1147
3721	Aircraft and parts	10494	5247	623	312	143	72	65	33	76	38	11	6
3743	Railroad equipment												
3751	Motorcycles and bicycles	22	10	30	14	48	22	379	171	34	15	8	4
	TOTAL CONNECTICUT	85669	42834	91500	45742	147687	74078	299261	144503	62362	30042	8983	4510

ILLINOIS — Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	669	324	19481	9273	317111	158887	532955	265541	43474	6494	629	310
343	Heating and plumbing equipment	19957	9420	10622	5033	465884	223677	807466	379785	48806	23329	1792	814
344	Structural metal products	158142	78280	67125	32354	893684	437790	856534	391505	82920	39885	829	376
346	Metal stamping and coating	8843	4528	9955	5195	899610	468666	1538911	791000	14895	7322	1628	855
3471	Lighting fixtures	987	543	500	275	100703	59997	2270553	1148779	2390	1155	508	262
3499	Metal products, n.e.c.	2710	1406	9594	5017	1207127	575582	1422926	663184	4868	2205	423	252
3511	Engines and turbines	2457	1342	893	487	32200	17554	19228	10558	207	112	101	52
3522	Tractors and farm machinery	80661	40331	20548	10171	1211887	599888	51098	24788	5306	2611	88	45
3533	Construction and mining machinery	43810	19320	32703	14128	79555	35506	13542	5955	2947	1304	363	179
3544	Metalworking machinery	17634	7935	11397	5129	145029	65358	184022	82881	2997	1440	1101	494
3555	Special-industry machinery, n.e.c.	7564	3684	5078	2331	60467	29444	62793	30088	2499	1222	2883	1400
3566	General industrial machinery	31578	16799	13405	7198	424407	225181	258008	134166	5754	2844	1382	682
3577	Office and store machines			1968	895	44999	22144	105153	47841	9771	4433	426	326
3588	Service and household machines	3426	1597	4433	2057	193779	91663	85722	39121	1524	724	1284	626
3599	Miscellaneous machinery parts	7529	4141	8842	4863	77735	42553	43773	24094	4611	2356	1998	925
3601	Electrical industrial apparatus	18353	9992	20092	10990	238256	126174	587227	322006	51669	25456	846	462
3621	Electrical appliances	219	103	2214	1001	49558	22661	333799	163234	3726	1768	2867	1462
3641	Engine electrical equipment	462	253	1617	880	3074	1683	133233	63222	3787	2088	458	206
3656	Communication equipment	4732	2546	4355	2387	200769	110953	49551	27322	6332	3118	2760	1394
3711	Motor vehicles and equipment	7794	4287	3567	1962	107951	59373	224135	123273	44119	24261	1162	637
3721	Aircraft and parts	1355	774	549	302	9119	5055	34222	18847	41170	22661	137	73
3732	Ships and boats	3586	1793	160	80	3009	1505	1414	777	174	96	72	38
3743	Railroad equipment	11741	7852	4746	2135	38209	17232	46550	20976	77003	34657	902	402
3751	Motorcycles and bicycles	145	65	1075	484	99	452	7645	3440	683	307	466	209
	TOTAL ILLINOIS	538784	216612	59145	29368	812921	409132	1128713	566056	272937	132890	27360	13463

INDIANA

Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	426	206	3943	1877	09821	44691	143611	71152	4778	2303	930	458
343	Heating and plumbing equipment	2097	990	2022	958	179922	86000	230133	107770	1928	921	603	285
344	Structural metal products	10511	5222	37155	17899	40374	19783	396955	104908	3738	1798	1397	678
346	Metal stamping and coating	5004	2562	2955	1543	57648	19686	700054	360008	955	471	2479	1277
3471	Lighting fixtures	667	367	1853	1019	09287	5108	230433	126074	2037	1120	2705	1559
349	Metal products, n.e.c.	732	380	3181	11641	50119	14400	211703	100227	1584	722	1058	516
351	Engines and turbines	997	544	490	267	10499	10133	113333	84114	1258	626	284	122
352	Tractors and farm machinery	4115	2056	21093	10441	20776	10277	84114	40811	555	284	1120	
353	Construction and mining machinery	10650	4699	8000	5459	15882	6999	27111	12020	1851	1010	711	345
354	Metalworking machinery	2656	1195	2815	1267	14653	6588	18511	8333	1500	710	1811	665
355	Special-industry machinery, n.e.c.	3050	1488	1826	1638	11263	5688	21946	11412	1394	688	1622	402
356	General industrial machinery	18595	9893	9606	5158	29129	15467	21946	11412	1394	688	1622	402
357	Office and store machines	8	4	52	24	165	81	15000	7192	3711	1818	665	324
358	Service and household machines	3425	1596	2424	1125	18175	8597	35672	16538	333	154	4	2
359	Miscellaneous machinery parts	12475	6886	991	545	23811	13107	13486	7411	1679	793	1477	687
361	Electrical industrial apparatus	10255	5589	7840	4200	12955	7034	31845	17356	2799	1531	1578	874
3621	Electrical appliances	353	215	2356	1077	3722	1700	20511	9255	3088	1411	1186	570
3641	Engine electrical equipment	1715	940	1973	1085	11037	6004	22110	10556	241	132	5	3
366	Communication equipment	667	359	1060	581	51120	17044	77166	42455	6822	3774	446	260
371	Motor vehicles and equipment	142055	78133	165982	91290	217008	119396	450772	247925	481033	264577	3909	2150
372	Aircraft and parts	5866	3222	1848	1016	5662	2018	13676	7522	6963	3813	1113	622
373	Ships and boats	2792	1396	165	83	46	23	22	11				
374	Railroad equipment	8800	3960	34132	15359	36308	16375	42105	19007	7391	3326	2	1
3751	Motorcycles and bicycles	33	15	175	79	09	40	704	317	63	28	47	21
	TOTAL INDIANA	277466	135028	340442	171947	466852	245125	745729	395632	177631	89303	13902	7175

MARYLAND

Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	5	2	77	37	168	84	261	130	104	50	55	27
343	Heating and plumbing equipment	805	380	151	72	3316	1585	41289	19352	3560	1702	233	110
344	Structural metal products	16578	8206	11571	5577	15514	7602	159888	74450	16407	7892	288	140
346	Metal stamping and coating	2060	1055	3037	1670	14365	7513	284448	145222	2348	1155	779	401
3471	Lighting fixtures												
349	Metal products, n.e.c.	42	22	1145	599	12700	6058	15912	7383	484	219	21	11
351	Engines and turbines												
352	Tractors and farm machinery	113	57	1385	686	315	156	210	102	145	73		
353	Construction and mining machinery	404	178	267	115	17	8	3	1				
354	Metalworking machinery	1137	512	699	315	521	234	660	297	35	16		
355	Special-industry machinery, n.e.c.	2991	1457	1441	661	1990	969	2026	970	817	401	772	376
356	General industrial machinery	2294	1220	640	344	5385	1797	3325	1729	3454	1700	285	147
357	Office and store machines	2	1	28	13	13	6	43	20	3	2		
358	Service and household machines	133	62	100	46	519	245	1014	464	448	212	75	35
359	Miscellaneous machinery parts	17	9	25	14	6	3	2	1				
361	Electrical industrial apparatus	856	467	497	272	1029	559	2184	1190	180	98	15	8
3621	Electrical appliances												
3641	Engine electrical equipment												
366	Communication equipment	1015	546	1699	931	2330	1277	5781	3180	510	279	28	17
371	Motor vehicles and equipment	70	39	624	345	361	199	7514	4135	14	8	1	1
372	Aircraft and parts	122	67	382	210	395	217	1347	741	75	41	4	2
373	Ships and boats	2355	1776	1732	866	1192	596	539	270	625	313	146	73
374	Railroad equipment												
3751	Motorcycles and bicycles												
	TOTAL MARYLAND	52195	26056	25500	12771	58136	29108	81424	40236	29209	14165	2704	1351

MASSACHUSETTS Estimated consumption of six major steel products for 1960 and half of 1961.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	2360	1142	166666	79333	193186	96778	388667	193556	56339	27118	2137	1054
343	Heating and plumbing equipment	1327	626	227	1088	50666	24222	94774	44344	25268	25188	83	394
344	Structural metal products	51549	25517	162881	78847	282966	138650	271055	126331	84887	84888	1764	504
346	Metal stamping and coating	902	462	50669	26446	164255	85900	384877	197882	35275	17355	1040	5034
3471	Lighting fixtures	9229	5111	61499	33822	85270	42067	152555	83903	13748	7411	7099	3655
349	Metal products, n.e.c.	995	516	3231314	1700558	29808	16303	37577	19343	9535	4838	1076	6338
351	Engines and turbines	3935	2149	13555	7338	62424	30911	48993	26808	5282	2828	3676	1886
352	Tractors and farm machinery	264	132	2114676	1136707	43035	19111	32323	15778	32211	16117	2066	1117
353	Construction and mining machinery	3468	1529	20355	8779	39402	17735	7474	3332	16	7		
354	Metalworking machinery	7077	3185	6604	2972	51233	24955	50287	22627	26414	11919	62	28
355	Special-industry machinery, n.e.c.	10835	5277	104411	47922	97373	51700	92264	44337	15400	7533	1828	8903
356	General industrial machinery	8220	4377	402893	216404	43087	15323	62220	32344	9360	4622	102	53
357	Office and store machines	19	9	15373	7402	15777	7463	192707	90965	18809	8822		
358	Service and household machines	3193	1488	16133	7498	54021	27122	479588	219655	127044	60009	4411	2045
359	Miscellaneous machinery parts	1408	774	13677	7552	17901	97220	463353	256263	40855	22354	1444	722
3611	Electrical industrial apparatus	8800	4796	69771	38133	24676	11223	16966	7805	18855	8855	28	134
3621	Electrical appliances	14	6	8841	3868	43577	23939	8707	4164	1852	852	8	4
3641	Engine electrical equipment			6911	3799	25900	14199	63177	34744	5677	3111	1554	804
366	Communication equipment	277	149	17444	9556	26166	14439	54332	29886	10155	5606	53	22
3711	Motor vehicles and equipment	7599	4177	9774	5366	40014	22001	14992	8242	7075	4141	3677	2024
372	Aircraft and parts	811	45	1944	1077	10811	5412	48888	24448	1229	588	9373	4775
373	Ships and boats	25923	12962	18455	9223	11114	5022	12929	5884	5677	2844	963	470
374	Railroad equipment,	3763	1697	12921	5811	9555	4302	76002	34221	2277	1022	122	55
3751	Motorcycles and bicycles	205	92	8801	3600					6799	3066	156	70
	TOTAL MASSACHUSETTS	135381	67347	1150244	574255	1479014	746394	2736394	1364794	560774	273133	82664	41294

MICHIGAN Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	1903	921	234117	111146	622444	311184	112929	562399	418022	201449	38663	19044
343	Heating and plumbing equipment	5635	2660	17209	8150	171113	81800	22421	104933	105112	87555	4056	1922
344	Structural metal products	1005553	497744	612499	295222	698899	342466	673121	313677	675122	324733	39236	19202
346	Metal stamping and coating	118881	60883	154097	80433	1196447	624575	227161	116761	183711	90399	19262	9920
3471	Lighting fixtures	1211	67	1992	1182	11993	5691	37034	20377	32727	18006	1111	606
349	Metal products, n.e.c.	12761	6662	6669900	3487879	62449	34244	68032	31565	18899	8686	4722	2423
351	Engines and turbines	6301	3440	2888414	1557272	181455	89882	37676	20053	4114	2263	764	436
352	Tractors and farm machinery	5969	2985	2922497	1447878	260222	115500	83449	40449	95477	47744	133	6
353	Construction and mining machinery	17396	7672	126373	54599	252191	113491	44	19707	8773	3868		
354	Metalworking machinery	34943	15724	2515151	1131318	31444	15311	31965	14385	7777	3886	799	366
355	Special-industry machinery, n.e.c.	5987	2916	41555	19073	55533	29477	37731	17325	18815	9295	1141	557
356	General industrial machinery	70583	37550	2084414	1119393	29448	15415	35317	17877	10888	5322	2632	1370
357	Office and store machines	63	29	6392	2888	2675	1226	24887	11332	10558	5291	101	21
358	Service and household machines	4884	2276	62932	29192	46411	25586	866755	397344	2398	1153	6313	2939
359	Miscellaneous machinery parts	5811	3220	21366	11755	27377	14466	26292	14468	27377	13923	1907	990
3611	Electrical industrial apparatus	7245	3949	28755	15733	9447	4322	54826	29727	29336	14522	1084	509
3621	Electrical appliances			4288	1933	1348	5337	63088	34688	75588	34626	4572	2199
3641	Engine electrical equipment	8061	4417	20754	6618	82805	45327	34728	19276	33888	16255	905	501
366	Communication equipment	119	64	1766	936	22959	16222	74032	40326	65	36	92	50
3711	Motor vehicles and equipment	14345252	7886994	6608144	3634488	1557422	8561586	3233989	1778692	5924600	3258850	2055518	1130362
372	Aircraft and parts	2668	1477	11655	6411	21182	11611	78637	43219	4003	2202	3383	1806
373	Ships and boats	12659	6330	5117	2599	8241	4411	37	19	43	22	3	2
374	Railroad equipment												
3751	Motorcycles and bicycles	16	7	79	36	48	22	384	173	34	15	14	6
	TOTAL MICHIGAN	4398962	2268922	9509044	5077600	19968220	10783985	38777715	20955561	2559104	1275815	516066	270209

MINNESOTA

Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	37	18	2628	1251	2372	1188	4037	2010	597	288	113	56
343	Heating and plumbing equipment	3	1	43	20	1862	890	3591	1681	1933	924	85	40
344	Structural metal products	22395	11087	11524	5555	12107	5932	13182	6145	1185	570	313	152
346	Metal stamping and coating	377	193	863	450	6512	3405	14385	7394	985	485	275	142
3471	Lighting fixtures	2	1	3	3	46	25	114	63	10	6		
349	Metal products, n.e.c.	34	18	1122	584	748	357	1229	660	3	1	13	7
351	Engines and turbines	185	101	181	99	572	313	357	196	42	25	20	11
352	Tractors and farm machinery	7489	3745	2213	1095	2031	1005	7869	3616	1163	581	49	24
353	Construction and mining machinery	9520	4198	683	295	238	105	404	179	86	36	5	2
354	Metalworking machinery	642	289	497	244	312	140	395	178	21	9	1	1
355	Special-industry machinery, n.e.c.	1139	555	857	392	663	324	715	342	265	130	32	15
356	General industrial machinery	3412	1815	1587	852	427	267	555	257	132	65	11	5
357	Office and store machines	60	28	771	353	6802	3636	5552	2553	48	22	6	3
358	Service and household machines	1839	857	1157	537	1226	583	4412	2092	1078	510	139	66
361	Miscellaneous machinery parts	91	50	92	51	66	36	57	24	4	2	6	4
362	Electrical industrial apparatus	1412	770	1093	598	2451	1331	5775	3127	49	27	15	8
3621	Electrical appliances	3	1	27	12	73	33	53	23	3	1	3	1
3641	Engine electrical equipment	40	22	305	167	1110	600	2171	1047	57	26	22	10
366	Communication equipment	77	41	304	167	612	338	1522	843	136	75	19	11
371	Motor vehicles and equipment	84	46	690	380	756	388	1467	807	26	14		
372	Aircraft and parts	4	2	26	11	566	311	211	116	7	4		
373	Ships and boats	974	487	73	37	27	14	1223	616	14	7		
374	Railroad equipment	8944	4034	3812	1715	3795	1712	4440	1999	772	347	45	20
3751	Motorcycles and bicycles												
	TOTAL MINNESOTA	58763	28358	56619	27367	73002	36026	107831	51707	41542	20150	2852	1365

MISSOURI

Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	210	102	4796	2283	4309	2159	7245	3607	910	439	246	121
343	Heating and plumbing equipment	1142	539	505	239	4528	2164	7866	3681	470	228	52	17
344	Structural metal products	69207	32777	2013	950	3739	1832	3704	1726	3553	1700	156	77
346	Metal stamping and coating	429	220	97	35	4062	2124	8966	4610	855	423	82	42
3471	Lighting fixtures			72	36	123	67	3005	1488	270	149		
349	Metal products, n.e.c.	68	35	2632	1393	8311	3962	1500	696	82	37	34	5
351	Engines and turbines	49	27	1176	577	3995	2161	1500	696	82	37	34	17
352	Tractors and farm machinery	725	363	3002	1486	3941	1955	1683	816	232	116	5	3
353	Construction and mining machinery	3204	1413	2523	1203	9824	4734	1868	827	37	16		
354	Metalworking machinery	480	216	493	244	5733	2558	7265	3208	69	18	2	1
355	Special-industry machinery, n.e.c.	549	267	5966	2744	5737	3509	6995	3333	3139	1544	53	21
356	General industrial machinery	696	370	1822	872	3291	1803	2390	1242	1699	678	43	22
357	Office and store machines	10	5	1992	877	2029	1003	1664	775	1469	668	43	22
358	Service and household machines	1577	735	1890	880	7922	3747	2354	1094	6693	3164	63	29
359	Miscellaneous machinery parts	101	56	3005	1655	1858	1027	1055	518	1	1	6	4
361	Electrical industrial apparatus	4303	2345	3771	2065	8418	4539	2078	1133	1837	1003	18	9
3621	Electrical appliances			4428	2509	8655	3994	5887	2644	6555	3002	32	14
3641	Engine electrical equipment	44	24	328	190	1956	1092	5808	2785	1	1	14	6
366	Communication equipment	57	31	1007	570	1205	1026	3880	1885			2	1
371	Motor vehicles and equipment	1578	868	7222	3963	3971	2276	3882	2112	452	255	200	127
372	Aircraft and parts	199	109	5993	3211	1848	1023	4612	2124	703	386	140	71
373	Ships and boats	2980	1490	2305	1158	1155	556	2502	1292	2305	1299	45	25
374	Railroad equipment	4174	1886	1745	952	1785	805	5144	2727	2075	1030	20	8
3751	Motorcycles and bicycles	10	5	52	23	458	220	3559	1626	3363	1636	226	92
	TOTAL MISSOURI	125360	60323	70118	34126	125595	62548	179595	89404	61136	29470	5354	2632

NEW JERSEY — Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	963	466	8911	4242	32772	16419	61685	30719	20333	9801	2534	1249
343	Heating and plumbing equipment	3241	1530	390	185	14812	7080	25236	11810	15538	7427	608	288
344	Structural metal products	90586	44840	36194	17446	52697	25822	46882	21847	36362	17490	1751	849
346	Metal stamping and coating	1683	862	1037	541	14344	7502	32192	16547	2991	1472	171	88
3471	Lighting fixtures			642	353	4087	2248	10139	5576	896	493	208	123
349	Metal products, n.e.c.	735	381	25820	13504	37898	18077	63661	29339	3434	1556	291	149
351	Engines and turbines	5561	3036	814	444	133	73	260	143	27	15	121	68
352	Tractors and farm machinery	448	224	2043	1011	1878	930	778	377	1126	563		1
353	Construction and mining machinery	8990	3965	6508	2611	2125	939	362	160	75	33		
354	Metalworking machinery	2485	1118	2185	983	1296	583	78	38	1641	410	10	5
355	Special-industry machinery, n.e.c.	6937	3378	4734	2173	1936	943	3717	1780	519	254	846	412
356	General industrial machinery	31221	16610	10467	5621	19675	10447	13482	7011	2410	1191	580	302
357	Office and store machines	154	25	689	313	1998	983	13073	5948	1172	534	70	32
358	Service and household machines	2257	1052	1906	884	9314	4406	33341	15270	7655	3621	1051	487
359	Miscellaneous machinery parts	2847	1526	2849	1567	6281	3455	35588	19557	375	206	175	96
361	Electrical industrial apparatus	9909	5400	7160	3917	20512	11138	52028	28355	4593	2512	397	200
3621	Electrical appliances	19	9	91	41	2886	1530	1948	879	219	100	76	34
3641	Engine electrical equipment	886	486	1911	1049	1481	812	28779	13776	814	464	126	77
366	Communication equipment	2078	1118	7317	4010	12611	6911	31269	17198	2766	1516	266	157
371	Motor vehicles and equipment	1104	607	4962	2729	13072	7190	27139	14926	495	272	97	53
372	Aircraft and parts	560	308	1777	977	3672	2020	1367	752	695	382	148	81
373	Ships and boats	30692	15346	1990	995	672	336	304	152	354	177	97	49
374	Railroad equipment	5401	2436	1656	745	1708	770	200	91	347	156	24	11
3751	Motorcycles and bicycles												
	TOTAL NEW JERSEY	208657	104763	132053	66541	255260	129214	427141	213148	102554	49857	10875	5478

NEW YORK — Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	568	275	13970	6650	13565	6796	24525	12213	4979	2400	3293	1623
343	Heating and plumbing equipment	14566	6875	4712	2233	38951	18619	61401	28736	41129	19660	626	296
344	Structural metal products	197127	97578	75556	36418	105588	51738	100787	46967	94703	45552	4793	2325
346	Metal stamping and coating	6016	3080	7485	3907	42262	22103	84130	43243	8953	4396	4973	2561
3471	Lighting fixtures	406	223	1811	996	6412	3527	15905	8748	1405	773	399	235
349	Metal products, n.e.c.	757	393	27976	14631	24690	11777	30889	14333	1237	560	259	133
351	Engines and turbines	6850	3740	1358	740	2200	1206	1573	864	243	131	383	216
352	Tractors and farm machinery	3283	1642	14795	7324	13795	6829	5297	2569	8491	4246	18	9
353	Construction and mining machinery	4254	1876	3439	1486	404	179	69	31	14	6		
354	Metalworking machinery	9920	4464	6499	2923	6767	3045	8577	3857	4666	2100	25	11
355	Special-industry machinery, n.e.c.	10372	5051	4802	2204	4952	2398	7259	3477	1606	785	180	87
356	General industrial machinery	28678	15257	13739	7373	36192	19218	26123	13884	13507	6672	774	386
357	Office and store machines	491	227	5555	2528	6284	3022	41846	19044	3751	1710	230	104
358	Service and household machines	7343	3422	3477	1610	28264	13359	94831	43433	2300	1088	166	77
359	Miscellaneous machinery parts	336	185	488	264	37111	20411	22101	11156	221	122	71	39
361	Electrical industrial apparatus	17839	9722	19294	10554	43577	23653	10892	5936	9627	5260	215	108
3621	Electrical appliances	333	152	1550	701	41453	18930	26977	12267	3240	1484	73	35
3641	Engine electrical equipment			2076	1140	8335	4336	1475	565		311	78	46
366	Communication equipment	1788	962	14956	7819	48056	26354	61107	31077	1047	574		28
371	Motor vehicles and equipment	22366	12301	105911	58251	261038	143571	542029	298116	9925	5459	344	189
372	Aircraft and parts	856	471	2309	1270	37766	20777	13997	7688	716	394	41	226
373	Ships and boats	34004	17002	2417	1209	8555	4288	4499	1941	387	225	97	49
374	Railroad equipment	68178	30748	26857	12086	27117	12254	31800	14441	5519	2484	94	42
3751	Motorcycles and bicycles			1056	475	1255	565	9990	4496	893	402	327	147
	TOTAL NEW YORK	436331	215646	348600	177792	681464	353474	1210769	625608	235165	114418	24743	12464

OHIO

Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	1 4 0 0	6 7 8	2 8 9 1 6	1 3 7 6 4	3 6 1 3 8	1 7 9 9 7	6 0 8 8 9	3 0 3 2 3	1 4 3 8 3	6 9 3 3	4 1 6 0	2 0 5 1
343	Heating and plumbing equipment	1 3 6 4 0	6 4 3 8	6 3 4 0	3 0 0 5	3 5 9 0 5	1 6 8 0 4	5 4 7 7 1	2 5 6 3 3	3 8 0 1 2	1 8 1 7 0	2 0 7 6	9 8 2
344	Structural metal products	2 2 0 7 4 8	1 0 9 2 7 0	9 2 5 2 2	4 4 5 9 6	1 3 9 1 2 6	7 4 1 5 3	1 5 5 3 7 0	7 2 4 0 2	1 4 9 8 7 9	7 2 0 9 2	5 4 6 8	2 6 5
3 347	Metal stamping and coating	1 0 8 8 5	5 5 7 3	2 3 5 2 0	1 2 2 7 0	1 3 3 3 6 5	6 8 5 5 0	2 5 8 3 3 5	1 3 2 7 8 4	2 1 9 8 0	1 0 8 1 4	5 4 9 5	2 8 5
3471	Lighting fixtures	4 3 3	2 3 8	1 0 1 0	5 5 6	5	3	1 2	7	1	1	2 5 8	1 5 2
349	Metal products, n.e.c.	2 4 6 3	1 2 7 8	9 5 4 4 8	4 9 9 1 8	1 1 2 9 7 6	5 2 4 2 1	1 5 0 8 1 4	6 9 9 7 8	6 2 9 6	2 8 5 2	9 3 7	4 8
351	Engines and turbines	8 4 9	4 6 4	2 9 9	2 9 3 6	9 0 2	4 9 5	5 3 6	2 9 0	6 0	3 2	6 7	3
352	Tractors and farm machinery	6 5 8 7	3 2 9 4	2 4 1 1 3	1 1 9 3 6	1 4 7 4 8	7 2 5 3	6 8 0 5	3 3 0 0	8 3 5 2	4 1 7 6	2 6	1
353	Construction and mining machinery	5 4 6 8 9	2 4 1 1 8	4 0 3 7 2	1 7 4 4 1	9 5 0 2	4 2 2 0 9	1 6 3 8	7 2 6	3 2 5	1 4	1 2	
354	Metalworking machinery	3 5 8 7 8	1 6 1 4 5	2 0 0 2 3	9 0 1 0	1 6 0 2 1	7 2 0 9	2 0 2 9 9	9 1 3 5	1 0 9 8	4 9 4	5 1	2
355	Special-industry machinery, n.e.c.	1 9 7 4 4	9 1 2 8	6 8 8 0 5	3 1 5 9 7	4 1 4 5	1 9 8 5	4 8 6 1	2 3 2 8	1 4 7 4	7 2 1	2 0 9 3	1 0 1
356	General industrial machinery	7 5 6 9 0 1	4 0 2 6 7	1 9 3 0 5	1 0 7 5 7	4 7 8 4 2	2 4 6 7 7	3 5 7 5 7 0	1 8 5 9 0	1 3 4 6 6	6 6 5 2	7 0 9 3	3 6
357	Office and store machines	1 0 6 1	4 9 0	1 6 5 8	7 5 4	1 3 7 8	6 2 7	8 7 5	4 4 9	8 7 5	3 9 9	2 3 9 2	1 0
358	Service and household machines	8 7 2 9	4 0 6 8	8 9 4 4	4 1 5 0	3 6 0 3 8	1 6 5 0 5	1 2 2 8 0 8	5 6 2 4 6	2 9 5 3 2	1 3 9 6	3 2 0 2	1 4
359	Miscellaneous machinery parts	1 6 8 5	9 2 7	6 5 0 2	3 5 7 6	1 5 6 4 7	8 6 0 6	8 8 6 0 9	4 8 7 3	9 3 5	5 1 4	3 8 5	2 1
3621	Electrical industrial apparatus	1 4 0 3	8 0 6 8	1 2 3 8 3 7	6 7 7 4	3 0 2 3 6	1 6 4 7 9	6 5 6 0 0 9	3 5 7 5 7	5 4 5 6	2 9 8 4	3 7 0	1 8
3622	Electrical appliances	3 9 2	2 6 9	4 2 0 7	1 9 0 2	7 5 6 2	3 4 1 0	4 9 1 3 4	2 2 1 5 9	5 7 4 3	2 6 3 0	2 9 4 0	1 3
3623	Engine electrical equipment	5 8 4 0	3 2 0 0	3 1 8 5 3	1 7 4 8 7	9 3 8 4	4 1 8 6	1 8 4 9 3	8 8 4	4 4 9	2 4 7	1 3 3	1
3624	Communication equipment	9 3	5 0	5 1 8	2 8 4	1 7 5 2	9 6 4	4 2 2 9 1	2 3 6 0	3 9 4	2 1 0	1 2 8	
371	Motor vehicles and equipment	3 6 6 2 8	2 0 1 4 5	1 3 1 8 3 2	7 2 5 0 8	4 0 4 5 4 1	2 2 2 4 9 8	8 3 9 9 9 7	4 6 1 9 9 8	1 5 3 7 7	8 4 5 7	6 1 9	3 4
372	Aircraft and parts	7 9 3	4 3 6	2 8 0 5	1 5 4 3	5 4 9 1	3 0 2 0	2 0 4 6	1 1 2 5	1 0 4 0	5 7 2	2 1 7	1 1
373	Ships and boats	8 8 3 2	4 4 1 6	3 7 8	1 8 9	5 6	2 8	2 5	1 3	3 0	1 5		
374	Railroad equipment	1 9 9 1 7	8 9 8 3	6 7 5 7	3 0 4 1	5 2 3 0	2 3 6 9	6 1 5	2 7 9	1 0 6 0	4 7 7	7 6	3
3751	Motorcycles and bicycles	3 0 5	1 3 7	1 4 8 1	6 6 6	1 1 4 9	5 1 7	9 1 5 4	4 1 1 9	8 1 8	3 6 8	1 0 1 9	4 5
	TOTAL OHIO	5 4 1 2 8 4	2 6 8 0 8 0	5 6 8 3 1 5	2 8 9 1 9 5	1 0 8 9 1 3 9	5 5 5 3 6 6	1 8 8 0 6 8 9	9 6 7 7 1 8	3 1 7 0 2 5	1 5 3 9 2 3	3 8 0 8 8	1 9 1 0

PENNSYLVANIA

Estimated consumption of six major steel products for 1960 and half of 1961.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)
342	Cutlery, tools and hardware	6 8 0	3 2 9	1 7 2 6 9	8 2 2 0	1 2 2 1 9	6 1 2 2	1 7 9 6 1	8 9 4 5	5 5 9 2	2 6 9 5	1 7 9 0	8 8 2
343	Heating and plumbing equipment	1 2 5 1 2	5 9 0 6	1 0 5 5 0	4 6 9 8	3 7 9 9 4	1 8 1 6 1	5 0 2 8 3	2 3 5 2 3	4 0 6 3 7	1 9 4 2 4	7 6 0	3 5
344	Structural metal products	4 0 0 5 1 1	1 9 8 2 5 3	1 0 5 9 6 6	5 1 0 7 8 6	1 0 8 5 5 9 4	7 4 9 9 4 7	1 4 4 0 0 5	6 7 1 0 6	1 4 1 3 1 9	6 7 9 7 4	6 7 1 0	3 2 5
3471	Metal stamping and coating	3 7 5	1 9 2	8 7 6 0	4 5 7 3	1 0 5 5 5 9	5 5 2 2 8	1 9 1 3 4 9	9 8 5 3	1 8 8 9 5 0	9 2 9 6	2 2 0	1 1
349	Metal products, n.e.c.	2 8 0	1 5 4	9 6 4	5 3 0	7 9 3 4	4 3 6 4	1 9 6 8 8 3	1 0 8 2 6	1 1 7 4	9 9 7		
351	Engines and turbines	1 5 6	8 0 8 0	1 3 2 7 5 6 3	6 9 4 3 3 0 5	5 0 3 9 0 6	2 3 9 9 6 3	6 3 4 8 8 3	2 9 4 5 5 6	2 5 6 3	1 1 6 1	5 2 2	2 6
352	Tractors and farm machinery	1 7 3 0 0 8	9 4 5 0	3 7 5 3 5 4 3	2 0 0 4 6 5	1 2 5 7 4 9	8 6 3	1 6 0 7	6 8 2	2 0 3	1 0 9	8 1 7	4 6
353	Construction and mining machinery	4 8 3 4	2 4 1 9	2 0 2 2 0 3	1 0 0 4 5	2 3 5 0 4 9	1 2 5 4 8	1 3 2 7 4	6 4 3 8	1 3 6 5 6	6 8 2 9	3 9 7	4
354	Metalworking machinery	1 9 5 4 6	8 6 2 0	1 4 2 2 0 5	6 0 3 7	2 0 1 1	8 8 9	2 7 3 6 8	1 2 5 3	1 5 0	6 5	1 9 7	
355	Special-industry machinery, n.e.c.	5 5 7 6	2 5 0 9	5 2 1 1	2 3 4 5	2 1 6 3	9 7 3	2 7 3 9	1 2 5 3	6 2 7	4 0 4	3 1 8 9	1 5
356	General industrial machinery	4 2 0 7	2 0 4 9	7 2 2 0 6	3 3 0 8	2 4 4 4	1 1 9 0	4 8 9 1	2 3 4 3	1 2 5	5 5	6 6 0	3 4
357	Office and store machines	1 5 5 9 1	8 2 9 4	9 9 4 0 9	5 3 4 3	2 5 8 6 3	1 3 7 3 3	1 6 9 0 5	8 7 9 1	5 7 7 4	2 8 5 2	1 3 0 6	6
358	Service and household machines	8	4	1 0 2	4 6	1 7 9	5 8	5 0 2	2 2 8	4 5	2 1	1 5	
359	Miscellaneous machinery parts	3 6 4 5	1 6 9 9	5 5 2 2 0 7	2 5 6 1 8	2 6 5 7	1 2 7 5 1	7 7 3 9 1 6	3 5 6 8 6	2 3 9 5 3	1 1 3 2 0	1 3 0 5	6
361	Electrical industrial apparatus	3 8 4 5	2 1 1 5	7 6 8 8 7	4 2 2 8 8	6 6 5 7	3 6 6 1	3 7 7 0	2 0 7 4	3 9 9	2 1	5 0 2	2
362	Electrical appliances	1 6 1 0 9	8 7 7 9	2 3 9 8 1	1 3 1 1 8	5 4 6 6 4	2 9 6 8 3	1 2 6 6 3 4	6 9 0 1 8	1 0 8 7 3	5 9 4 8	3 9 6	1 6
3641	Engine electrical equipment	4 6 8	2 3 4	1 5 1 3 0	1 8 8	6 8 0 4	3 1 0 3	3 6 4 4	1 7 3 4	5 5 0	2 5 2	1 6 7 0	7
3642	Communication equipment	1 3 2 4	7 2 6	1 1 4 5 0	6 3 9 6	1 1 7 4	5 4 3	3 2 3 7 6	1 1 3 6 4	5 3	2 9	3 9 7	
371	Motor vehicles and equipment	4 6 9	2 5 2	7 1 9	3 9 4	1 1 0 0 0	4 4	1 9 5 5	1 0 7 4	2 1 6	1 1 8	6 7	2
372	Aircraft and parts	2 0 1 2 9	1 1 0 7 1	6 4 8 3	3 5 6 6	2 4 0 6 9 8	1 3 2 3 8 4	4 9 9 7 8 0	2 7 4 8 7 9	9 1 4 8	5 0 1	4 1 8 2	2 3
373	Ships and boats	3 2 9	1 8 7	1 2 2 7	6 7 5	2 0 8	1 2 1 4	8 2 3	4 5 3	4 1 6	2 3	7 1 6	2
374	Railroad equipment	1 1 3	1 6 7	1 6 7	8 4	3 4	1 7	1 5	8	1 8	9		3
3751	Motorcycles and bicycles	1 7 0 9 2 0	7 7 0 8 5	6 8 6 4 3	3 0 8 8 9	6 7 2 1 7	3 0 3 1 5	7 8 6 9	3 5 6 5	1 3 6 5 3	6 1 4 4	1 1 1 1	5 0
	TOTAL PENNSYLVANIA	7 0 0 9 1 3	3 4 1 4 7 3	4 5 3 7 8 4	2 2 5 5 9 1	8 2 7 8 7 8	4 2 4 6 2 8	1 2 5 2 0 3 3	6 4 7 9 1 4	2 9 0 7 5 5	1 4 1 1 3 2	2 6 7 1 6	1 3 3 7 8

TEXAS

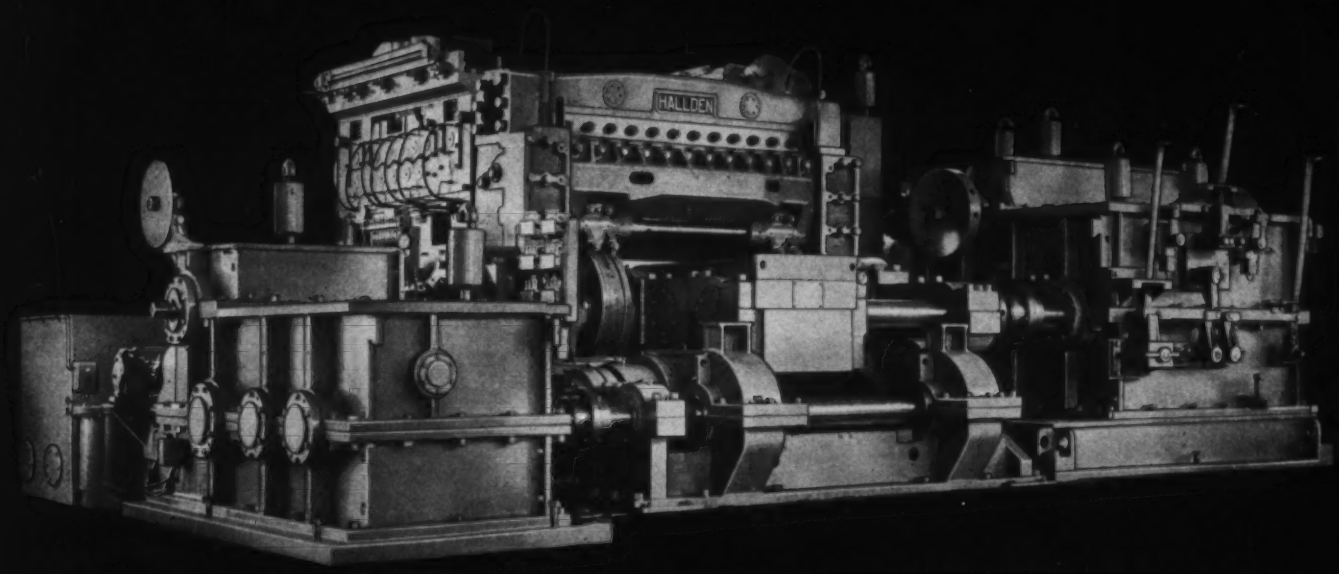
Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	20	10	268	128	958	480	1461	728	5122	247	182	90
343	Heating and plumbing equipment	115	54	59	28	5349	2557	6525	3054	5752	2749	518	245
344	Structural metal products	108878	53895	233222	112411	391227	191722	3716111	1731779	3685588	1772294	1039	504
346	Metal stamping and coating	2711	1399	1155	600	21499	11224	525514	2699	10655	525	177	91
3471	Lighting fixtures	91	50	134	74	7177	3944	177995	9978	1557	866	177	91
349	Metal products, n.e.c.	72	37	16222	8482	2456363	1171717	4606565	2137474	2535	1148	52	27
351	Engines and turbines	17	9	3	2	13	7	57	4	1	1	1	1
352	Tractors and farm machinery	469	235	28177	1394	331212	163996	1330636	648	1994	997	7	3
353	Construction and mining machinery	19010	8583	211281	91933	1266060	559656	2803142	1254	5077	2248	103	44
354	Metalworking machinery	420	189	457	206	5777	2600	732	329	31	18	5	2
355	Special-industry machinery, n.e.c.	908	442	13355	613	327373	159447	5333997	2551	9101	441	623	303
356	General industrial machinery	21335	11336	12777	6866	535354	284343	3554747	1844	15466	764	108	56
357	Office and store machines												
358	Service and household machines	122	57	3766	1745	121218	57676	9112020	4177	8402	397	794	368
359	Miscellaneous machinery parts	181	100	10455	5755	134136	74020	762	414	804	44	77	42
361	Electrical industrial apparatus	360	196	3388	1855	4768	2600	1191	649	1044	577	2	1
3621	Electrical appliances												
3641	Engine electrical equipment	14	8	94	52	88	48	1677	80	4	2	1	
366	Communication equipment	309	166	2633	1444	52121	28863	1294412	7123	1144	622	17	14
371	Motor vehicles and equipment	3577	1966	172424	9488	4815	2648	9999999	5499	18005	999	288	158
372	Aircraft and parts	2433	1334	7351	4028	15233	8388	5673	3126	2894	599	202	110
373	Ships and boats	12236	6118	9165	4588	655	328	2955	1486	3443	172	81	41
374	Railroad equipment	96	43	11	5	18	8	3	1	3	1		
3751	Motorcycles and bicycles												
	TOTAL TEXAS	1463244	715977	581888	274166	1087144	531155	1354332	647833	538255	259211	38422	18599

WISCONSIN

Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

SIC CODE	CONSUMING INDUSTRY	CARBON PLATES 1960 (Year)	CARBON PLATES 1961 (6 Mo.)	CARBON H.R. BARS 1960 (Year)	CARBON H.R. BARS 1961 (6 Mo.)	CARBON H.R. SHEET & STRIP 1960 (Year)	CARBON H.R. SHEET & STRIP 1961 (6 Mo.)	CARBON C.R. SHEET & STRIP 1960 (Year)	CARBON C.R. SHEET & STRIP 1961 (6 Mo.)	GALVANIZED SHEET 1960 (Year)	GALVANIZED SHEET 1961 (6 Mo.)	STAINLESS SHEET & STRIP 1960 (Year)	STAINLESS SHEET & STRIP 1961 (6 Mo.)
342	Cutlery, tools and hardware	42	20	4289	2042	220377	110411	4338383	2160505	24966	1203	204	101
343	Heating and plumbing equipment	619	292	14192	673	1193535	570505	1395511	652929	1286865	614	492	233
344	Structural metal products	1060511	524955	2190202	1055757	3663222	1779398	3588355	1666999	3380022	1625	139	67
346	Metal stamping and coating	11566	5922	42466	2216	1010000	528223	2071488	1064744	773	380	606	312
3471	Lighting fixtures	1066	588	3200	1766	34776	19122	86233	47443	7633	805	69	26
349	Metal products, n.e.c.	1866	977	60822	3181	15966	7612	7053	3926	1868	422	29	17
351	Engines and turbines	67500	36866	28830	15422	1046969	573737	8738	4799	7266	397	69	35
352	Tractors and farm machinery	2368929	1184585	5962929	2951516	3411166	1688837	1340028	650071	1505005	752	181	102
353	Construction and mining machinery	4250991	1874646	3193434	1379755	1048000	463232	1786866	791911	3509	399	13	9
354	Metalworking machinery	61300	27559	43932	19776	354949	155977	4495	2023	2455	1105	1	1
355	Special-industry machinery, n.e.c.	72499	35300	42444	19478	446373	217373	6544	3175	1335	655	17	3
356	General industrial machinery	1937878	1030991	1201929	645454	3483777	1849988	2165944	1122811	7455994	3684	1408	686
357	Office and store machines	3	1	26	12	33	16	2677	1211	2824	1105	19	101
358	Service and household machines	31700	14777	30044	13944	1037878	490909	5045592	2311109	7887	373	2	1
359	Miscellaneous machinery parts			178	98	22121	12222	1255	699	1337	177	483	224
361	Electrical industrial apparatus	72200	39355	60693	33200	1373244	745858	3049191	1661818	2566	1405	49	27
3621	Electrical appliances			6283	2822	5251	2511	3303034	1490906	4486	2037	1339	677
3641	Engine electrical equipment			12693	6997	92600	50774	1903932	1012665	9122	2607	298	134
366	Communication equipment	28	15	488	266	1955	1077	4	2	4332	2424	6	3
371	Motor vehicles and equipment	172677	94977	8972269	4934929	8557455	4716005	1780222	979122	4433	2439	875	481
372	Aircraft and parts	1	1	3	2	9	5	4	2	2	1		
373	Ships and boats	16346	8173	11158	579	594	297	2677	1334	3122	1566	39	20
374	Railroad equipment												
3751	Motorcycles and bicycles	513	231	1199	540	1637	737	130388	58677	11666	525	324	146
	TOTAL WISCONSIN	2584137	1277597	2566097	1303757	3966377	2057007	6618547	3396177	1002222	491327	1231107	62097



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Superior small-diameter tubing makes pressures behave whether low, medium, high or super. Superior pressure tubing can be roughly divided into two groups: commercial pressure tubing for use in a range up to 20,000 psi; premium super pressure tubing to handle pressures from 15,000 to 100,000 psi. Both ranges can be handled effectively by a number of different analyses, depending on service requirements. Typical applications for Superior general-purpose pressure tubing include pressure tools, machine tools, heat exchangers and condensers. Superior super-pressure tubing is found in hydrogenation process equipment, high-pressure autoclaves, and pilot plant installations in chemical and oil refining plants.

All Superior pressure tubing offers many advantages. It helps prevent critical failures and downtime. It assures long service life, high fatigue strength, excellent corrosion and chemical resistance. In the range from 15,000 to 100,000 psi, Superior super-pressure tubing is a premium product. It is produced from specially selected raw materials. Inside surfaces are conditioned to remove fissures and other defects. During processing, special degreasing operations are performed, and the inside diameters are conditioned to insure a clear, smooth surface. Two types are available: a single wall mechanical tubing and a double wall, or composite unit, made from two thinner tubes. It is produced in an annealed condition and in ⅛ hard temper, and to mechanical properties specified by the customer. All Superior pressure tubing is 100% hydrostatically tested to recommended working pressures, and rigidly inspected for defects.

We can probably help you with any tubing problem that may confront you . . . in pressure, super-pressure or other applications. Contact us and feel no obligation. Superior Tube Company, 2004 Germantown Ave., Norristown, Pa.

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All analyses .010 in. to ⅝ in. OD—certain analyses in light walls up to 2½ in. OD

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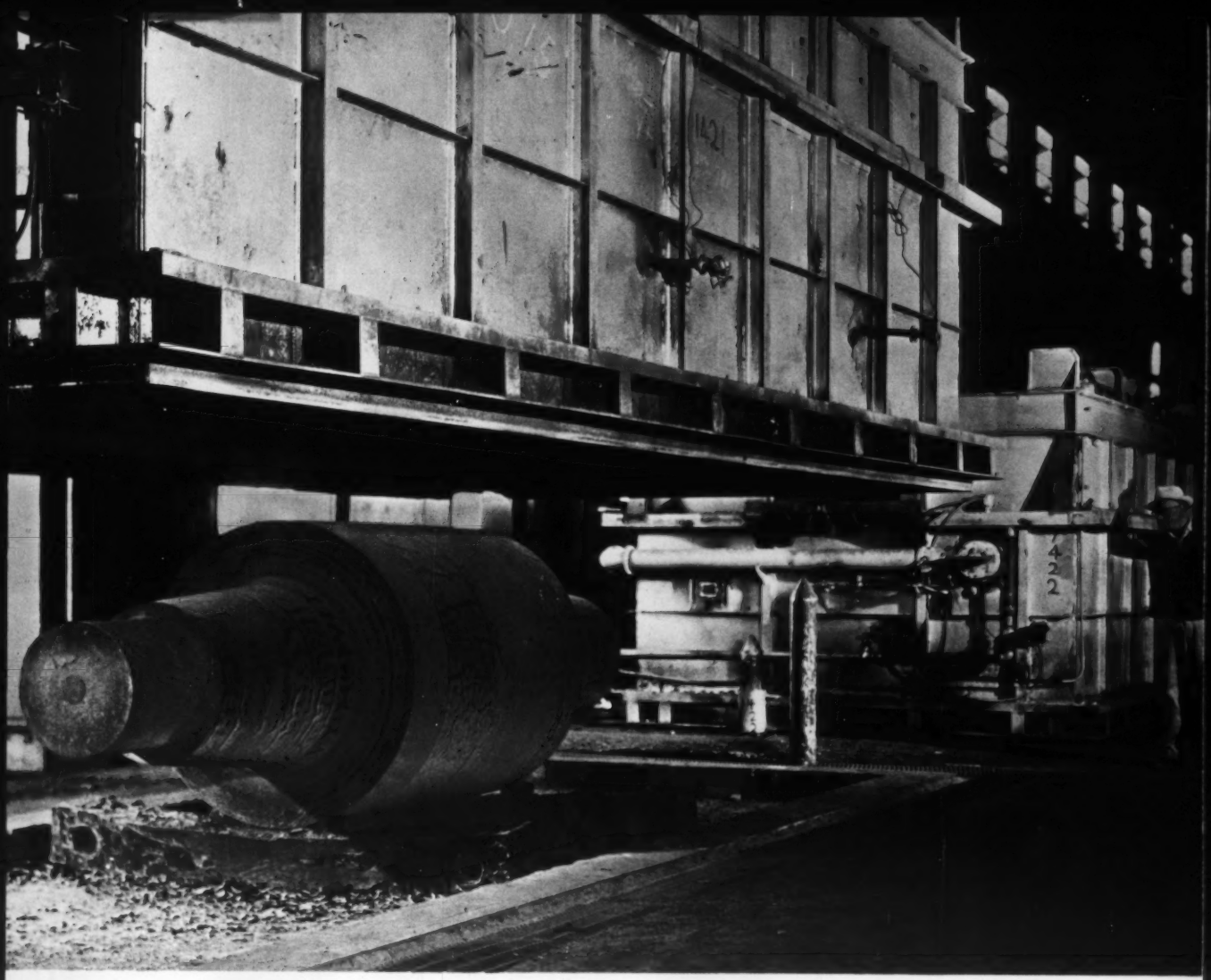

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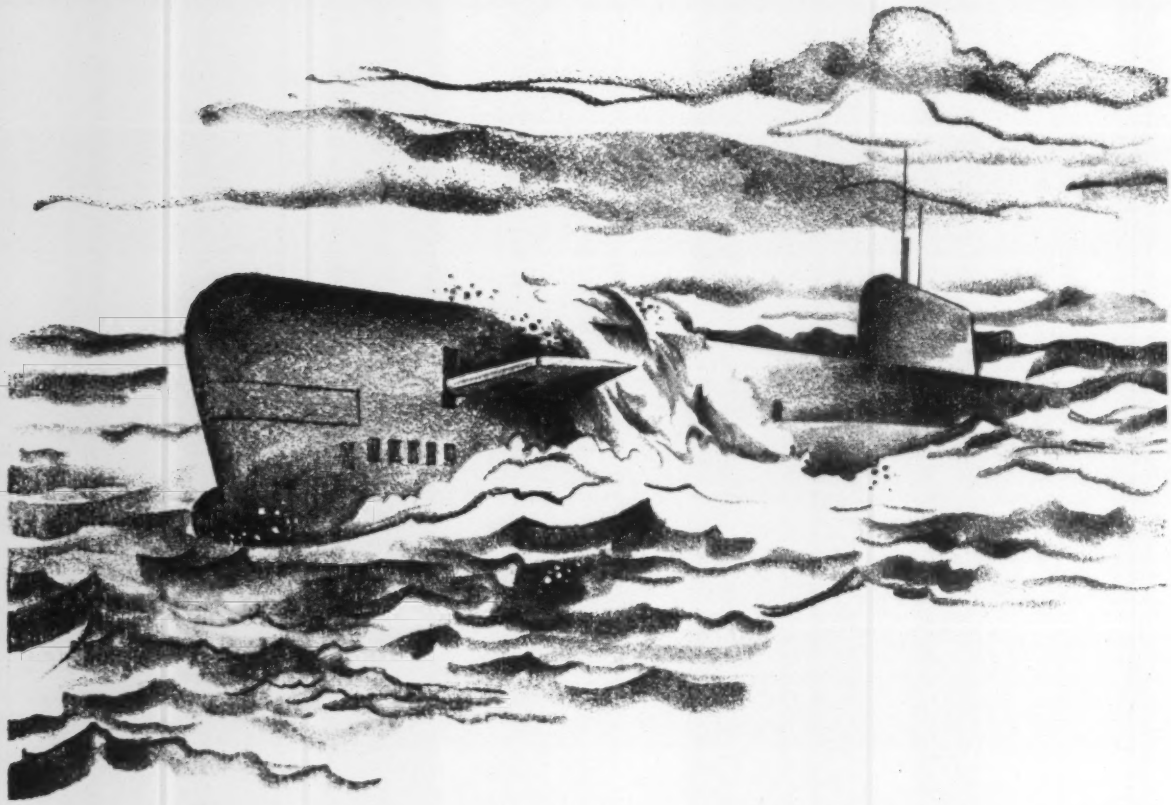

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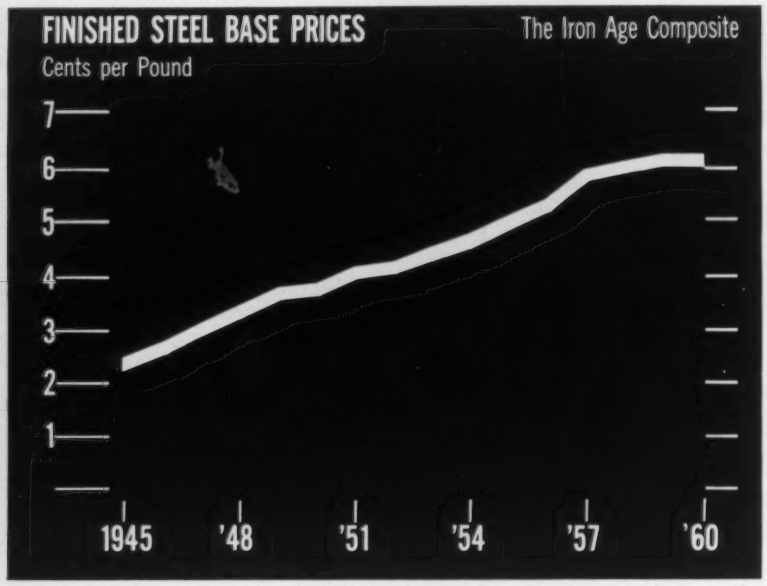
Steel Prices, Production



THE IRON AGE FINISHED STEEL COMPOSITE PRICE

Cents Per Pound

	1937	1938	1939	1940*	1945*	1946	1947	1948	1949	1950
Jan.	2.323	2.584	2.354	2.305	2.412	2.484	2.877	3.193	3.720	3.837
Feb.	2.323	2.581	2.354	2.305	2.427	2.555	2.884	3.215	3.719	3.837
Mar.	2.532	2.578	2.354	2.305	2.432	2.719	2.884	2.241	3.715	3.837
Apr.	2.584	2.578	2.354	2.267	2.433	2.719	2.884	3.241	3.709	3.837
May	2.584	2.569	2.308	2.305	2.436	2.719	2.884	3.214	3.706	3.837
June	2.584	2.513	2.283	2.305	2.464	2.719	2.884	3.211	3.705	3.837
July	2.584	2.359	2.283	2.305	2.464	2.719	2.914	3.293	3.705	3.837
Aug.	2.584	2.359	2.283	2.305	2.464	2.719	3.193	3.720	3.705	3.837
Sept.	2.584	2.357	2.283	2.305	2.464	2.719	3.193	3.720	3.705	3.837
Oct.	2.584	2.320	2.283	2.305	2.464	2.719	3.193	3.720	3.705	3.837
Nov.	2.584	2.354	2.268	2.305	2.464	2.719	3.193	3.720	3.705	3.837
Dec.	2.584	2.354	2.305	2.305	2.464	2.747	3.193	3.720	3.756	4.131
Average	2.536	2.459	2.311	2.302	2.449	2.686	3.014	3.434	3.713	3.862

	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Jan.	4.131	4.131	4.376	4.634	4.797	5.174	5.622	5.967	6.196	6.196
Feb.	4.131	4.131	4.376	4.634	4.797	5.174	5.649	5.967	6.196	6.196
Mar.	4.131	4.131	4.376	4.634	4.797	5.179	5.666	5.967	6.196	6.196
Apr.	4.131	4.131	4.376	4.634	4.797	5.179	5.670	5.967	6.196	6.196
May	4.131	4.131	4.393	4.634	4.797	5.179	5.670	5.967	6.196	6.196
June	4.131	4.131	4.517	4.634	4.797	5.179	5.670	5.967	6.196	6.196
July	4.131	4.180	4.634	4.789	5.081	5.179	5.818	5.967	6.196	6.196
Aug.	4.131	4.376	4.634	4.801	5.174	5.560	5.967	6.175	6.196	6.196
Sept.	4.131	4.376	4.634	4.801	5.174	5.622	5.967	6.194	6.196	6.196
Oct.	4.131	4.376	4.634	4.798	5.174	5.622	5.967	6.196	6.196	6.196
Nov.	4.131	4.376	4.633	4.797	5.174	5.622	5.967	6.196	6.196	6.196
Dec.	4.131	4.376	4.633	4.797	5.174	5.622	5.967	6.196	6.196	6.196
Average	4.131	4.237	4.518	4.716	4.977	5.358	5.800	6.060	6.196	6.196

* 1941-1944 inclusive: 2.396.

THE IRON AGE finished steel composite price is a weighted average of the base prices of 10 major steel products which account for the majority of finished steel shipments. It is weighted by the percentage that each of these products is to total finished steel shipments during the base period. With the base constant, the only changes in the composite from 1929 through 1940 or from 1941 through 1960 occur when one or more steel products prices were changed.

In the composite shown here there are two base periods. For the years 1931 through 1940 the base is finished steel shipments for 1929-1939 inclusive. For 1941 through 1960 the base is finished steel shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. Two base periods are used because of basic changes in the shipment pattern in the 20 years covered. In each case the products remain the same. They are hot-rolled bars, structural shapes, plates, rails, pipe, wire and hot- and cold-rolled sheets and strip. To eliminate variations due to nonferrous metals price fluctuations, no coated products are included.

Details of latest revisions which appear in current series may be found in The Iron Age, May 12, 1949, p. 139. This reference also gives a comparison of current series with former series.

STEEL INDUSTRY OPERATING RATES

U. S. Openhearth, Bessemer and Electric Furnace Ingots and Steel for Castings—Percent of Capacity

	1942	1943	1944	1945	1946	1947
Jan.	94.50	96.80	95.70	88.80	49.60	93.20
Feb.	95.90	98.50	97.00	90.80	19.80	91.90
Mar.	98.20	100.00	98.80	95.00	83.30	94.40
Apr.	97.70	99.30	98.80	92.90	77.50	93.90
May	98.10	98.40	97.10	91.80	52.20	94.70
June	96.30	94.80	94.10	87.10	74.40	92.90
July	94.50	96.20	94.30	86.30	84.90	85.10
Aug.	95.40	98.30	94.10	70.70	86.90	92.20
Sept.	96.40	100.70	94.00	76.30	86.90	90.80
Oct.	100.00	101.20	95.60	69.00	89.00	97.70
Nov.	97.80	98.60	94.30	78.90	85.40	96.50
Dec.	96.60	94.20	92.60	74.80	73.90	95.40
Average	96.80	98.10	95.50	83.50	72.50	93.00

	1948	1949	1950	1951	1952	1953
Jan.	93.60	100.4	94.0	99.9	99.3	99.1
Feb.	93.00	101.6	89.2	97.2	100.7	99.1
Mar.	95.30	102.9	88.8	102.5	102.2	101.8
Apr.	80.40	98.6	100.6	103.1	89.7	98.7
May	94.80	93.0	101.4	102.8	89.2	100.1
June	93.80	82.2	99.6	101.0	18.4	97.2
July	88.70	71.0	94.8	98.3	17.7	93.1
Aug.	93.10	82.3	96.5	98.7	92.4	94.2
Sept.	96.10	83.6	99.4	101.2	101.9	92.1
Oct.	99.90	11.4	102.4	103.0	106.6	94.7
Nov.	100.50	53.4	97.0	102.6	105.9	89.9
Dec.	97.70	94.8	98.0	100.6	105.6	79.7
Average	94.10	81.1	96.9	100.9	85.8	94.9

	1954	1955	1956	1957	1958	1959	1960
Jan.	75.3	82.7	99.3	97.1	56.5	74.3	95.5
Feb.	74.3	88.0	99.2	97.6	53.6	84.8	94.3
Mar.	69.0	93.4	100.2	93.4	52.3	92.3	91.6
Apr.	68.1	94.8	99.7	89.5	47.8	93.0	80.1
May	70.7	96.6	96.2	86.4	52.7	92.5	70.0
June	72.0	94.1	92.1	85.6	61.6	89.9	60.6
July	62.9	85.3	14.9	78.6	53.9	41.7	50.3
Aug.	63.1	89.7	74.5	81.5	61.1	11.5	54.2
Sept.	66.7	95.7	98.8	81.8	66.0	12.7	52.9
Oct.	72.9	98.2	101.3	81.1	74.0	13.6	54.4
Nov.	79.1	99.0	100.0	76.5	74.1	59.9	50.5
Dec.	78.6	98.5	99.4	72.0	72.9	95.6	45.9
Average	71.0	93.0	89.8	84.5	60.6	63.3	66.7*

* Estimate.

Source: American Iron and Steel Institute.

Openhearth, bessemer and electric furnace steel capacity, production and operating rates . . . Canadian output, capacity.

COMPOSITE PRICE BY PERIODS

Period	Cents per Pound
Apr. 12, 1949 to May 2, 1949	3.708
May 3, 1949 to Dec. 21, 1949	3.705
Dec. 22, 1949 to Dec. 28, 1949	3.836
Dec. 29, 1949 to Dec. 4, 1950	3.837
Dec. 5, 1950 to July 25, 1952	4.131
July 26, 1952 to May 8, 1953	4.376
May 9, 1953 to May 21, 1953	4.390
May 22, 1953 to June 16, 1953	4.417
June 17, 1953 to Nov. 14, 1953	4.634
Nov. 16, 1953 to Dec. 15, 1953	4.632
Dec. 16, 1953 to June 30, 1954	4.634
July 1, 1954 to July 2, 1954	4.635
July 3, 1954 to July 5, 1954	4.791
July 6, 1954 to Oct 3, 1954	4.801
Oct. 4, 1954 to Nov. 9, 1954	4.798
Nov. 10, 1954 to July 11, 1955	4.797
July 12, 1955 to July 18, 1955	5.178
July 19, 1955 to July 25, 1955	5.176
July 26, 1955 to March 19, 1956	5.174
Mar. 20, 1956 to Aug. 6, 1956	5.179
Aug. 7, 1956 to Aug. 13, 1956	5.374
Aug. 14, 1956 to Feb. 11, 1957	5.622
Feb. 12, 1957 to Feb. 18, 1957	5.650
Feb. 19, 1957 to Feb. 25, 1957	5.661
Feb. 26, 1957 to March 4, 1957	5.663
March 5, 1957 to July 8, 1957	5.670
July 9, 1957 to Aug. 4, 1958	5.967
Aug. 5, 1958 to Aug. 11, 1958	6.138
Aug. 12, 1958 to Sept. 8, 1958	6.188
Sept. 9, 1958 to Dec. 31, 1960	6.196

CANADIAN STEEL CAPACITY

Ingot Capacity and Operating Rates

	Steel Ingot Capacity	Steel Ingot Output	Percent o Capacity
1942	3,172,000	2,942,921	92.7
1943	3,257,500	2,848,235	87.4
1944	3,338,200	2,878,407	86.2
1945	3,358,600	2,767,206	81.7
1946	3,358,600	2,253,437	67.0
1947	3,245,000	2,854,532	87.9
1948	3,490,000	3,089,027	88.5
1949	3,598,000	3,089,368	84.1
1950	3,672,500	3,298,068	89.8
1951	3,630,900	3,446,125	94.9
1952	3,630,900	3,578,106	98.5
1953	4,302,800	4,009,813	93.1
1954	4,857,500	3,113,822	66.8
1955	4,883,000	4,441,743	90.9
1956	5,504,000	5,185,227	94.2
1957	5,504,000	4,924,133	89.4
1958	6,313,000	4,254,607	67.3
1959	6,719,000	5,817,012	92.1
1960*	6,719,000	5,790,000	86.1

* Estimated. Source: Dominion Bureau of Statistics.

CANADIAN STEEL OUTPUT

Ingots and Steel for Castings, Net Tons

	Ingots	Castings	Total Steel Ingots and Castings
1933	441,346	17,830	459,176
1934	827,041	23,116	850,157
1935	1,016,814	35,123	1,051,937
1936	1,211,334	38,337	1,249,671
1937	1,496,575	74,652	1,571,137
1938	1,238,078	56,636	1,294,714
1939	1,266,056	60,997	1,327,053
1940	2,177,973	77,899	2,255,872
1941	2,578,063	123,250	2,701,313
1942	2,942,921	178,440	3,121,361
1943	2,848,235	148,743	2,996,978
1944	2,878,407	146,003	3,024,410
1945	2,747,206	134,117	2,881,323
1946	2,253,437	81,194	2,334,631
1947	2,854,532	90,634	2,945,166
1948	3,089,027	112,629	3,201,656
1949	3,089,368	97,562	3,186,930
1950	3,298,068	86,063	3,381,131
1951	3,446,125	121,236	3,567,361
1952	3,578,106	122,037	3,700,143
1953	4,009,813	105,656	4,115,469
1954	3,113,882	80,300	3,194,122
1955	4,441,743	87,658	4,529,401
1956	5,188,227	120,578	5,305,805
1957	4,924,133	113,731	5,037,864
1958	4,254,607	90,684	4,345,291
1959	5,817,012	104,716	5,921,728
1960*	5,791,000	99,000	5,890,000

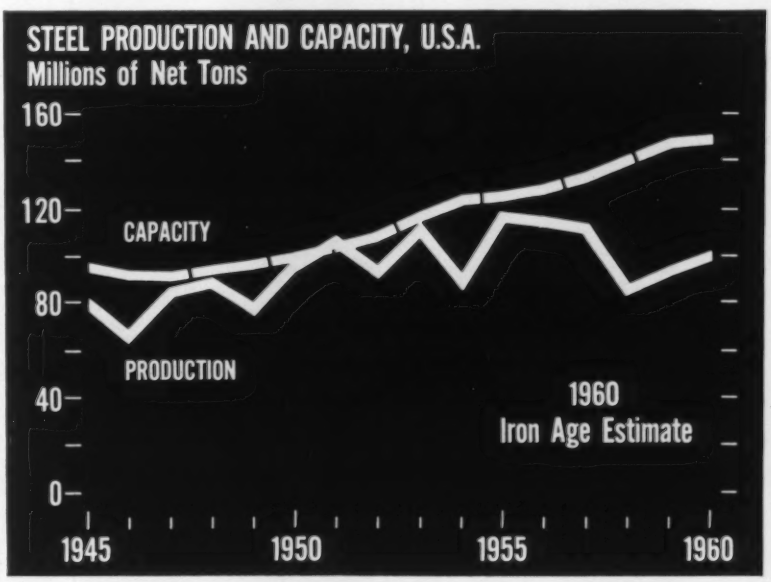
* Estimated. Source: Dominion Bureau of Statistics.

STEEL CAPACITY, PRODUCTION AND RATES

Ingots and Steel for Castings, Net Tons

	Total Capacity	Openhearth Production	Openhearth Percent of Total Output	Bessemer Production	Bessemer Percent of Total Output	Electric* Production	Electric* Percent of Total Output	Total Production	Total Percent of Capacity
1960	148,570,970	88,600,000	89.3	1,500,000	1.5	9,100,000	9.2	99,200,000†	66.7†
1959	147,633,670	83,533,335‡	89.3	1,380,283	1.5	8,532,514	9.2	93,448,132	63.3
1958	140,742,570	75,879,394	89.1	1,395,985	1.6	7,979,506	9.3	85,254,885	60.6
1957	133,459,150	101,657,776	90.2	2,475,138	2.2	8,582,082	7.6	112,714,996	84.5
1956	128,363,090	102,840,585	89.2	3,227,997	2.8	9,147,587	8.0	115,216,149	89.9
1955	125,828,310	105,359,417	90.0	3,319,517	2.8	8,357,151	7.2	117,036,085	93.0
1954	124,330,410	80,327,494	91.0	2,548,104	2.9	5,436,054	6.1	88,311,652	71.0
1953	117,547,470	100,473,823	90.0	3,855,705	3.5	7,280,191	6.5	111,609,719	94.9
1952	108,587,670	82,846,439	88.9	3,523,677	3.8	6,797,923	7.3	93,168,039	85.8
1951	104,229,650	93,166,518	88.6	4,890,946	4.6	7,142,384	6.8	105,199,848	100.9
1950	99,982,650	86,262,509	89.1	4,534,558	4.7	6,039,008	6.2	96,836,075	96.9
1949	96,120,930	70,248,803	90.1	3,946,656	5.1	3,782,717	4.8	77,978,176	81.1
1948	94,233,460	79,340,157	89.5	4,243,172	4.8	5,057,141	5.7	88,640,470	94.1
1947	91,241,250	76,873,793	90.5	4,232,543	5.0	3,787,785	4.5	84,894,071	93.0
1946	91,890,560	60,711,963	91.2	3,327,737	5.0	2,563,024	3.8	66,602,724	72.5
1945	95,505,280	71,939,602	90.3	4,305,318	5.4	3,456,728	4.3	79,701,648	83.5
1944	93,854,420	80,363,953	89.7	5,039,923	5.6	4,237,724	4.7	89,641,600	95.5
1943	90,589,190	78,621,804	88.5	5,625,492	6.3	4,589,216	5.2	88,836,512	98.1
1942	88,886,550	76,501,957	88.9	5,553,424	6.5	3,976,550	4.6	86,031,931	96.8
1941	85,158,150	74,389,619	89.8	5,578,071	6.7	2,871,569	3.5	82,839,259	97.3
1940	81,619,496	61,573,083	91.9	3,708,573	5.6	1,701,030	2.5	66,982,686	82.1
1939	81,828,958	48,409,800	91.7	3,358,916	6.4	1,029,998	1.9	52,798,714	64.5
1938	80,158,638	29,080,016	91.6	2,106,340	6.6	565,634	1.8	31,751,990	39.6
1937	78,148,374	51,824,979	91.5	3,863,918	6.8	948,048	1.7	56,636,945	72.5
1936	78,164,300	48,760,463	91.2	3,873,472	7.2	886,064	1.6	53,499,999	68.4
1935	78,451,930	34,401,280	90.1	3,175,235	8.3	607,190	1.6	38,183,705	48.7
1934	78,128,416	26,354,838	90.3	2,421,840	8.3	405,246	1.4	29,181,924	37.4
1933	78,614,403	22,827,473	87.7	2,720,248	10.5	472,510	1.8	26,020,229	33.1
1932	78,780,913	13,336,210	87.0	1,715,925	11.2	270,766	1.8	15,322,901	19.5
1931	77,257,803	25,210,714	86.8	3,386,259	11.6	461,988	1.6	29,058,961	37.6

* Includes very smal ltonnages of crucible steel.
‡ Includes 1,864,338 tons of oxygen-made steel.
† IRON AGE Estimate.
Source: American Iron & Steel Institute



Monthly data on U.S. production of openhearth, bessemer and electric furnace ingots . . . Round-up of world steel output.

WORLD STEEL PRODUCTION

Ingots and Steel for Castings, Thousands of Net Tons

Compiled by THE IRON AGE from the United Nations Bulletin of Statistics, Chambre Syndicate de la Siderurgie Francaise, British Iron and Steel Federation and the American Iron and Steel Institute.

	1960*	1959†	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949
Australia	4,000	3,696	3,532	3,373	2,914	3,480	2,117	2,296	1,835	1,606	1,596	1,309
Austria	3,400	2,769	2,638	2,766	2,290	2,009	1,822	1,427	1,165	1,133	1,044	920
Belgium	8,100	7,092	6,626	6,922	7,028	6,403	5,522	4,997	5,621	5,590	4,155	4,242
Brazil	2,100	2,057	1,764	1,590	1,504	1,286	1,288	1,109	985	930	834	677
Canada	6,100	5,922	4,359	5,040	5,306	4,529	3,192	4,110	3,703	3,567	3,384	3,186
China	20,200	14,716	8,818	5,499	5,024	3,142	2,397	1,150	....	....	....	....
Czechoslovakia	7,700	6,764	6,074	5,622	5,382	5,401	4,884	4,883	3,944	3,651	3,190	2,756
France	18,900	16,775	16,111	15,546	14,770	13,880	11,319	11,023	11,979	10,842	9,537	10,086
Germany West	33,600	28,464	25,117	27,014	25,561	23,518	19,221	16,997	17,423	14,888	13,361[3]	10,090[3]
Germany East	4,000	4,083	3,825	3,203	3,020	2,756	2,486	2,666	2,087	1,711	....	....
Hungary	2,100	1,913	1,793	1,411	1,571	1,764	1,644	1,653	1,539	1,360	1,100	882
India	3,400	2,720	2,031	1,915	1,947	1,909	1,882	1,691	1,768	1,680	1,610	1,517
Italy	9,000	7,454	6,913	7,482	6,512	5,947	4,638	3,858	3,897	3,362	2,583	2,265
Japan	22,400	18,330	13,358	13,854	12,243	10,370	8,523	8,445	7,703	7,167	5,332	3,352
Luxembourg	4,500	4,038	3,724	3,853	3,809	3,555	3,118	2,931	3,309	3,391	2,702	2,507
Mexico	1,400	1,212	1,090	683	648	579	515	504	561	500	390	380
Netherlands	2,100	1,841	1,585	1,299	1,159	1,074	1,023	948	755	609	....	....
Poland	7,000	6,790	6,207	5,846	5,527	4,894	4,370	3,965	3,509	3,078	2,750	2,539
Rumania	1,700	1,584	1,030	941	882	843	693	793	769	720	....	....
Saar	4,200	3,983	3,814	3,797	3,719	3,849	3,093	2,959	3,112	2,869	2,092	1,936
South Africa[1]	2,200	2,026	1,952	1,848	1,708	1,681	1,523	1,386	1,326	1,045	830	699
Spain	2,200	1,995	1,720	1,456	1,370	1,337	1,209	985	1,000	902	900	793
Sweden[2]	3,300	3,130	2,649	2,733	2,646	2,342	2,052	1,969	1,836	1,658	1,587	1,511
Un. Kingdom	27,100	22,609	21,914	24,304	23,138	22,166	20,742	19,723	18,388	17,516	16,240	17,256
U. S. S. R.	71,700	66,084	60,482	58,325	54,443	49,936	45,203	41,800	36,029	34,500	29,800	23,600
United States	99,200	93,448	85,255	112,717	115,216	117,038	88,312	111,610	93,168	105,200	96,836	77,978
Yugoslavia	1,600	1,432	1,234	1,154	977	889	679	568	488	470	....	....
Others	4,000	3,843	3,385	2,888	2,360	1,816	1,548	2,280	1,524	....	....	....
Totals	377,200	336,748	298,000	321,061	312,654	297,011	245,013	258,706	229,423	229,945	204,348	173,386

* Estimated. † Revised. [1] Ingots only. [2] Ingots and finished castings.
[3] British, French and United States Zones.

WORLD STEEL DATA

Data in the table at left are based on an extensive Iron Age study. Assisting in the study were the Intelligence Dept. of the British Iron & Steel Federation Chambre Syndicate de la Siderugie Francaise, United Nations, American Iron and Steel Institute and Iron Age correspondents throughout the world. Though based on the best available information, the accuracy of Iron Curtain steel data is naturally not of the same order as that of the free world.

U. S. MONTHLY STEEL INGOT PRODUCTION

Openhearth, Bessemer and Electric Furnace Ingots and Steel for Castings, Net Tons; U. S. Only

	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947
Jan.	3,279,473	3,474,353	5,398,326	1,984,815	3,663,004	5,764,723	6,928,083	7,112,106	7,424,522	7,592,603	7,204,312	3,872,887	7,222,612
Feb.	3,169,909	3,379,587	5,050,824	1,942,795	3,448,120	4,525,797	6,237,900	6,512,535	6,824,604	7,194,009	6,652,765	1,392,682	6,430,401
Mar.	3,273,910	3,810,436	5,970,247	2,293,884	3,929,387	4,389,183	7,131,641	7,392,111	7,674,578	7,826,257	7,705,929	6,508,784	7,318,974
Apr.	3,017,177	4,494,782	5,801,540	2,196,413	3,431,600	4,100,474	6,756,949	7,121,291	7,373,703	7,593,688	2,289,887	5,801,195	7,051,842
May	3,009,425	4,614,529	5,894,260	2,661,169	3,372,636	4,987,782	7,053,238	7,382,578	7,549,691	7,702,576	7,449,667	4,072,620	7,339,014
June	2,580,771	4,543,888	4,787,710	1,868,848	3,606,729	5,657,443	6,800,730	7,015,302	7,039,353	7,234,257	6,840,522	5,625,773	6,977,714
July	2,591,240	4,473,940	5,212,832	2,259,677	3,648,639	5,724,625	6,821,682	7,144,958	7,407,876	7,948,387	6,985,571	6,618,683	6,578,685
Aug.	3,331,770	4,782,442	5,580,683	2,903,805	4,341,726	6,186,383	7,000,957	7,227,655	7,586,464	7,498,913	5,735,317	6,924,522	6,991,152
Sept.	3,227,876	4,744,841	4,907,592	3,029,736	4,881,601	6,056,246	6,819,246	7,057,519	7,514,339	7,235,111	5,982,475	6,555,566	6,797,457
Oct.	3,590,945	5,182,430	3,881,819	3,554,912	6,223,126	6,644,542	7,242,683	7,579,514	7,614,117	7,620,885	5,596,776	6,951,742	7,570,152
Nov.	3,599,687	4,941,014	2,464,793	4,072,676	6,292,322	6,469,107	6,969,987	7,179,812	7,371,975	7,278,719	6,200,466	6,457,771	7,242,427
Dec.	3,511,702	5,056,843	1,685,273	3,751,253	5,958,893	6,495,357	7,163,999	7,304,540	7,255,144	7,336,170	6,057,937	5,760,501	7,375,641
Total	38,183,705	53,449,085	56,635,899	31,751,983	52,797,783	66,981,662	82,927,557	86,029,921	88,836,366	89,641,575	79,701,624	68,602,706	84,894,071

	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
Jan.	7,486,878	8,197,390	7,941,797	8,848,466	9,136,117	9,897,962	7,951,486	8,837,736	10,828,231	11,008,762	6,753,912	9,317,385	12,049,404
Feb.	6,948,017	7,493,942	6,803,032	7,770,407	8,657,210	8,932,779	7,083,237	8,496,934	10,118,995	9,987,206	5,782,323	9,602,938	11,126,806
Mar.	7,616,770	8,401,796	7,497,822	7,076,630	9,404,191	10,168,098	7,289,600	9,981,754	10,924,788	10,589,074	6,254,622	11,567,745	11,564,683
Apr.	6,224,487	7,796,165	8,224,504	8,845,979	7,991,142	9,545,538	6,970,937	9,815,095	10,536,121	9,814,780	5,532,991	11,281,920	9,777,857
May	7,580,642	7,598,990	8,564,207	9,100,155	8,204,596	9,997,080	7,472,738	10,326,316	10,490,376	9,792,323	6,301,159	11,600,581	8,830,472
June	7,265,249	6,504,656	8,143,230	8,662,348	1,639,491	9,404,479	7,363,634	9,746,467	9,721,436	9,391,402	7,127,480	10,907,634	7,404,873
July	7,075,517	5,784,831	8,082,922	8,684,495	1,626,958	9,275,673	6,627,597	9,100,946	1,622,163	8,908,732	6,420,405	5,227,129	6,350,924
Aug.	7,448,834	6,722,771	8,242,174	8,739,095	8,498,687	9,405,580	6,666,907	9,594,545	8,122,597	9,233,890	7,286,003	1,439,277	6,838,000
Sept.	7,424,844	6,597,935	8,204,997	8,660,357	9,062,105	8,883,428	6,807,483	9,882,325	10,422,659	8,977,906	7,610,372	1,535,017	6,458,421
Oct.	7,996,895	928,347	8,752,686	9,121,886	9,806,830	9,462,722	7,701,553	10,501,050	11,048,513	9,197,717	8,839,778	1,704,533	6,868,380
Nov.	7,797,558	4,223,129	8,023,393	8,799,352	9,438,886	8,690,052	8,089,427	10,247,398	10,555,500	8,392,919	8,569,318	7,267,607	6,167,000†
Dec.	7,780,779	7,728,224	8,355,311	8,890,678	9,890,162	7,946,328	8,287,073	10,503,519	10,837,545	7,420,285	8,710,522	11,989,319	5,800,000*
Total	88,640,470	77,978,176	96,836,075	105,199,846	93,153,375	111,609,719	88,311,652	117,036,085	115,216,149	112,714,996	85,254,885	93,446,132	99,200,000*

* Estimate. † Preliminary.

Source: American Iron and Steel Institute.

Financial analysis of steel industry . . . Twenty-eight steel producers covered represent 93 pct of U.S. ingot capacity.

FINANCIAL ANALYSIS OF THE STEEL INDUSTRY

For years 1955 through 1959. Data Cover 28 Companies Representing 93 Pct of U. S. Ingot Capacity

COMPANY	Year	Ingot Capacity Net Tons	Ingot Production Net Tons	Percent of Capacity Operated	Steel Shipments Net Tons	Net Sales and Operating Revenue	Provision for Federal Income Taxes	Net Income	Net Income Percent of Sales	Earnings Per Common Share	Invested Capital
U. S. Steel Corp.	1959	41,916,000	24,445,353	58.3	18,093,747	$2,643,040,035	$233,000,000	$254,563,401	7.0	$4.25	$3,638,204,829
	1958	40,212,000	23,818,889	59.23	16,992,305	3,472,177,091	285,000,000	301,558,231	8.7	5.13	3,601,550,892
	1957	39,582,000	33,738,000	85.2	23,414,000	4,413,806,173	406,000,000	419,406,956	9.5	7.33	3,214,386,449
	1956	39,582,000	33,402,000	85.2	23,911,000	4,228,877,241	331,000,000	348,098,916	8.2	6.01	3,008,996,483
	1955	38,877,000	35,309,000	90.8	25,506,000	4,097,680,287	366,000,000	370,099,353	9.0	6.44	2,868,655,585
Bethlehem Steel Corp.	1959	23,000,000	14,257,356	62.0	10,267,778	2,079,082,467	123,000,000	117,235,859	5.6	2.44	1,791,793,953
	1958	23,000,000	13,393,034	58.2	9,686,228	2,024,282,732	131,000,000	137,741,946	6.8	2.91	1,786,505,120
	1957	20,500,000	19,123,201	93.3	13,535,705	2,624,913,123	175,000,000	191,025,933	7.3	4.13	1,758,004,876
	1956	20,000,000	18,322,308	91.6	13,198,783	2,343,478,150	147,000,000	161,411,625	6.9	15.33	1,608,356,409
	1955	19,100,000	18,820,912	98.5	13,553,823	2,114,599,636	181,000,000	180,191,708	8.5	18.09	1,522,975,045
Republic Steel Corp.	1959	12,742,000	7,504,624	58.9	5,446,342	1,076,832,407	52,800,000	53,890,116	5.0	3.43	816,885,556
	1958	12,242,000	6,430,283	52.5	4,463,595	910,382,817	60,500,000	61,921,680	6.8	3.96	811,474,121
	1957	11,047,000	8,484,615	76.8	6,211,485	1,227,257,507	89,600,000	85,014,422	6.9	5.45	773,190,575
	1956	10,202,000	9,348,898	91.1	6,783,307	1,244,214,346	94,700,000	90,406,665	7.3	5.83	698,248,994
	1955	10,262,000	9,680,121	97.1	6,988,782	1,188,559,765	84,000,000	88,271,491	7.3	5.59	650,126,815
Jones & Laughlin Steel Corp.	1959	8,000,000	4,896,000	61	3,889,000	765,672,000	27,594,000	29,485,000	3.9	3.58	673,966,000
	1958	7,500,000	4,947,000	66.0	3,357,000	654,060,000	18,090,000	23,198,000	3.6	2.79	658,380,000
	1957	6,900,000	6,048,000	88.0	4,272,000	837,568,000	39,901,000	45,452,000	5.4	5.65	647,694,000
	1956	6,166,500	5,997,000	97.0	4,341,000	742,642,000	39,380,000	45,122,000	6.1	6.63	581,426,000
	1955	6,166,500	6,190,000	100.0	4,418,000	696,538,000	46,500,000	50,104,000	7.2	7.73	526,212,000
National Steel Corp.	1959	7,000,000	5,331,496	76	4,433,957	736,978,650	58,250,000	54,897,380	7.45	7.28	682,182,129
	1958	6,800,000	4,476,000	66.0	.....	539,957,294	35,000,000	35,827,414	6.64	4.80	566,889,286
	1957	6,200,000	5,326,425	86.0	.....	640,967,342	43,550,000	45,518,884	7.1	6.13	551,004,615
	1956	6,000,000	.....	.....	.....	664,251,090	47,000,000	52,502,422	7.9	7.09	532,312,345
	1955	6,000,000	.....	.....	.....	622,018,919	48,275,000	48,289,453	7.8	6.54	482,911,987
Youngstown Sheet & Tube Co.	1959	6,750,000	4,100,717	60.8	3,008,183	617,899,289	30,600,000	30,956,040	5.1	8.90	571,273,041
	1958	6,500,000	3,659,482	56.3	2,542,714	506,959,574	20,170,000	21,501,320	4.3	6.23	553,400,772
	1957	6,240,000	5,137,534	82.3	3,593,375	679,885,073	39,488,000	42,508,579	6.25	12.35	531,846,126
	1956	5,750,000	5,406,016	94.0	3,839,224	684,041,021	37,329,000	43,174,587	6.31	12.62	498,364,512
	1955	5,520,000	5,571,556	100.9	3,944,492	626,232,840	41,867,500	41,701,140	6.8	12.34	462,890,771
Inland Steel Co.	1959	6,500,000	4,227,317	65.0	3,162,272	713,215,002	39,150,000	48,354,030	6.4	2.77	677,698,167
	1958	5,800,000	4,714,904	81.3	3,384,209	661,253,596	42,440,000	47,869,042	7.3	8.32	604,801,130
	1957	5,500,000	5,502,000	100.0	4,041,130	772,380,683	60,555,000	58,876,875	7.7	10.34	582,774,294
	1956	5,200,000	4,915,576	94.5	3,852,719	731,767,767	55,142,000	52,998,726	7.3	9.43	497,757,696
	1955	5,000,000	5,189,509	103.8	3,954,567	663,317,374	53,050,000	52,486,098	8.0	9.52	416,415,101
Armco Steel Corp.	1959	6,400,000	5,128,907	80.1	4,103,543	1,022,428,742	75,862,114	77,064,249	7.5	5.21	845,087,157
	1958	6,294,200	4,506,127	70.5	3,640,620	867,390,909	55,860,180	57,512,151	6.63	3.89	744,472,289
	1957	5,950,000	5,406,648	90.9	3,807,723	776,736,401	54,521,286	55,044,509	7.09	4.59	603,150,801
	1956	5,150,000	5,220,147	101.4	3,936,105	761,800,102	63,290,322	65,593,182	8.61	6.03	480,309,799
	1955	4,950,000	5,099,905	103.0	4,003,532	692,683,234	66,613,787	64,350,609	9.3	6.05	444,015,755
Kaiser Steel Corp.	1959	2,933,000	1,537,802	52.4	1,056,727	202,126,940	70,000	−7,401,076	−3.7	−3.26	384,438,427
	1958	1,536,000	1,466,278	95.5	940,500	181,385,288	2,175,000	5,422,271	3.0	0.76	407,970,265
	1957	1,536,000	1,590,322	103.5	1,043,620	208,619,403	9,300,000	21,438,507	10.3	5.91	373,126,516
	1956	1,536,000	1,617,681	105.3	1,140,776	201,489,824	12,055,000	23,571,852	11.7	6.57	245,177,553
	1955	1,536,000	1,432,742	93.3	929,556	136,148,919	.....	5,471,236	4.2	1.08	245,329,442
Colorado Fuel & Iron Corp.	1959	2,836,500	1,682,541	59.32	1,341,549	280,288,103	3,723,600	4,364,554	1.56	1.04	227,322,687
	1958	2,836,500	1,706,308	60.16	1,355,084	276,163,902	2,468,500	2,147,223	0.78	0.47	195,728,675
	1957	2,799,500	2,163,594	77.3	1,815,406	340,755,160	14,926,000	14,236,851	4.18	4.04	197,115,766
	1956	2,471,500	2,401,231	97.16	2,134,490	341,630,224	16,891,800	16,662,653	4.9	4.74	189,184,650
	1955	2,471,500	1,936,402	78.35	1,627,587	257,543,050	10,681,800	10,887,163	4.2	3.79	170,325,365
Wheeling Steel Corp.	1959	2,400,000	1,397,002	58.2	1,139,036	211,633,718	4,209,000	7,033,050	3.32	2.53	238,567,941
	1958	2,400,000	1,580,214	65.8	1,119,363	221,009,355	6,954,000	8,899,267	4.03	3.69	237,440,675
	1957	2,200,000	1,828,534	83.1	.....	249,756,955	10,116,000	12,077,696	4.84	5.32	237,041,083
	1956	2,130,000	1,994,745	93.7	.....	259,554,918	18,630,000	17,672,276	6.81	8.20	236,452,198
	1955	2,130,000	2,057,288	96.6	.....	249,455,016	18,480,000	17,295,711	6.9	8.12	229,796,667
McLouth Steel Corp.	1959	2,040,000	1,215,693	59.59	966,967	177,446,839	5,600,000	10,058,232	5.67	5.32	159,983,907
	1958	1,574,000	1,396,103	88.70	1,047,029	171,590,704	2,430,000	9,998,374	5.83	5.65	152,564,480
	1957	1,574,000	1,534,240	97.5	1,122,335	179,458,165	5,562,000	9,409,977	5.2	5.37	153,069,766
	1956	1,380,000	1,372,592	99.5	1,092,877	163,906,619	9,110,000	8,806,258	5.4	5.01	123,232,929
	1955	1,200,000	.....	.....	.....	144,987,476	7,375,000	8,148,342	5.6	5.66	127,716,528
Sharon Steel Corp.	1959	1,861,000	973,844	52.3	647,460	119,760,979	1,787,000	2,145,593	1.79	1.94	90,803,088
	1958	1,989,000	779,281	39.78	517,277	99,970,977	−190,000	224,942	0.22	0.20	90,264,442
	1957	1,898,000	1,204,283	63.5	856,503	151,651,824	3,606,000	4,046,773	2.7	3.68	92,082,963
	1956	1,763,000	1,508,660	85.6	1,126,612	180,044,408	6,473,000	6,905,539	3.8	6.28	82,716,190
	1955	1,550,000	1,528,686	98.6	1,092,593	173,095,949	7,840,000	7,987,622	4.6	7.26	73,098,951
Pittsburgh Steel Co.	1959	1,560,000	935,411	60.0	794,061	150,647,405	579,000	−994,310	.66	1.45	116,331,119
	1958	1,416,000	955,593	61.3	725,653	134,475,314	−1,418,000	−885,593	−0.65	−1.37	120,019,201
	1957	1,320,000	1,223,534	91.0	1,018,756	183,260,331	1,516,000	4,155,000	2.28	1.80	124,195,837
	1956	1,320,000	1,139,882	86.4	1,077,610	179,133,961	3,404,000	6,225,000	3.49	3.24	125,912,965
	1955	1,320,000	1,303,503	98.8	1,132,437	177,707,556	4,372,000	7,515,470	4.3	4.31	118,397,226
Granite City Steel Company	1959	1,440,000	1,307,970	90.8	1,126,328	164,371,219	17,230,000	16,142,341	9.8	7.53	134,311,599
	1958	1,200,000	1,106,556	87.8	879,500	125,272,603	10,127,000	9,373,580	7.5	4.36	123,871,072
	1957	1,200,000	1,116,698	93.1	894,052	123,763,490	10,829,000	9,984,451	8.1	4.64	118,827,377
	1956	1,080,000	1,151,620	107.0	1,057,932	137,131,233	15,800,000	15,109,411	11.0	7.04	113,844,912
	1955	1,080,000	1,091,389	101.0	961,101	116,293,657	13,703,700	12,610,820	11.0	6.05	102,436,342

Financial analysis of steel industry showing capacity, sales earnings data, shipments, production, etc., by company.

FINANCIAL ANALYSIS (Continued)

COMPANY	Year	Ingot Capacity Net Tons	Ingot Production Net Tons	Percent of Capacity Operated	Steel Shipments Net Tons	Net Sales and Operating Revenue	Provision for Federal Income Taxes	Net Income	Net Income Percent of Sales	Earnings Per Common Share	Invested Capital
Crucible Steel Co. of America	1959	1,431,180	886,726	62.0	579,488	$219,229,082	$4,900,000	$6,106,443	2.8	$1.50	$153,585,467
	1958	1,424,530	710,823	49.9	459,311	186,363,233	2,315,000	4,274,793	2.3	1.13	142,135,179
	1957	1,423,400				235,938,306	5,630,000	6,543,594	2.8	1.73	141,257,392
	1956	1,423,400				263,922,898	12,910,000	12,767,625	4.8	7.02	140,460,520
	1955	1,351,400	1,222,176	90.4		237,715,380	15,570,000	13,208,602	5.6	8.05	128,847,921
Lukens Steel Co.	1959	930,000	568,244	61.1	377,624	83,178,393	2,520,000	2,598,496	3.1	2.72	73,028,757
	1958	750,000	602,996	80.4	404,770	99,256,110	4,255,000	4,181,986	4.2	4.38	63,776,747
	1957	750,000	758,212	101.1	566,521	130,473,207	11,687,000	10,119,998	7.8	10.61	43,052,618
	1956	750,000	703,434	93.8	512,735	105,173,925	7,675,000	7,504,889	7.1	23.60	39,593,684
	1955	750,000	691,444	92.2	490,569	79,307,572	2,400,000	1,731,238	2.2	5.44	34,334,613
Detroit Steel Corp.	1959	900,000	824,757	92	719,811	117,047,887	11,910,000	11,939,492	10.2	3.90	86,304,614
	1958	1,500,000	447,613	30.0	386,093	61,781,666	1,250,000	1,153,692	1.9	0.31	81,723,218
	1957	1,500,000	562,477	37.0	480,911	82,458,616	3,346,000	3,004,382	3.6	0.90	84,844,546
	1956	1,290,000	1,032,237	80.0	909,261	123,616,057	9,015,000	8,747,092	7.1	2.78	87,696,369
	1955	1,290,000	888,443	68.9	787,788	101,803,010	6,715,966	6,317,860	6.2	2.07	85,693,209
Allegheny Ludlum Steel Corp.	1959	864,200	480,785	53.3	296,126	232,559,479	11,960,000	11,290,664	4.85	2.92	153,210,141
	1958	864,200	418,254	48.4	270,213	202,572,808	6,174,000	5,844,803	2.89	1.52	141,392,570
	1957	864,200	495,280	57.3	352,989	267,647,586	13,441,000	11,651,851	4.35	3.02	144,990,974
	1956	864,200	666,918	77.2	453,822	287,078,052	16,867,000	15,261,090	5.32	4.04	140,683,981
	1955	864,200	683,195	79.1	464,231	255,587,054	16,554,000	14,985,660	5.9	8.25	121,125,921
Phoenix Steel Corp.	1959	846,760	556,031	65.67		60,615,789	2,475,000	2,108,754	3.48	2.03	32,929,710
	1958	846,760	226,110	26.70		27,614,634	−2,185,396	−1,966,545	−7.12	−1.90	32,168,100
	1957	846,760	585,993	69.0		83,885,112	3,536,000	3,062,998	3.65	0.74	35,575,755
	1956	893,000	732,600	82.0		119,536,637	8,118,951	7,009,956	5.86	1.98	37,808,634
	1955	893,000	520,900	58.3		75,084,700	995,255	655,319	0.9	0.20	22,822,552
Northwestern Steel & Wire Corp.	1959	825,000	638,203	77.4	538,009	83,781,108	9,200,000	8,450,321	10.1	3.38	44,158,000
	1958	825,000	473,561	57.4	380,518	60,488,595	5,840,000	5,049,890	8.4	2.02	39,205,142
	1957	825,000	703,752	85.3	548,419	78,105,122	6,030,000	5,225,418	6.7	2.09	36,025,803
	1956	825,000	692,326	83.9	585,816	74,157,804	5,760,000	5,076,959	6.8	2.07	32,971,850
	1955	825,000	502,443	60.9	391,675	51,403,405	4,610,000	4,131,969	8.0	5.05	29,585,467
Alan Wood Steel Co.	1959	800,000	740,254	92.53	517,985	81,074,208	4,118,000	4,855,885	5.99	6.63	37,329,725
	1958	800,000	505,341	63.17	335,571	54,163,265	997,000	2,109,203	3.89	2.68	38,227,292
	1957	800,000	655,536	81.9	437,819	67,889,893	1,047,000	2,054,048	3.0	2.60	38,330,232
	1956	625,000	713,859	109.1	495,098	69,330,353	2,024,000	3,095,727	4.5	4.04	36,653,835
	1955	625,000	665,908	106.5	462,046	58,375,609	1,619,000	2,551,530	4.4	3.32	35,951,285
Lone Star Steel Co.	1959	800,000	751,477	93.93		112,944,477	14,598,000	14,175,678	12.55	3.97	102,069,033
	1958	660,000	384,475	58.3	192,000	45,804,182	None	1,064,697	2.0	0.33	99,899,714
	1957	550,000	666,853	121.2	469,228	95,340,258	11,570,000	11,329,508	11.9	3.90	103,203,078
	1956	550,000	629,579	114.4	485,269	88,650,577	11,000,000	10,151,363	11.5	3.84	100,373,570
Copperweld Steel Company	1959	660,000				138,364,827	6,336,000	5,972,457	4.3	5.00	66,327,363
	1958	660,000				93,526,153	2,175,000	2,081,114	2.2	1.76	56,065,725
	1957	660,000				121,094,351	2,500,000	2,769,855	2.3	2.41	55,480,326
	1956	660,000				100,541,926	4,220,000	3,440,872	3.4	4.08	40,267,983
	1955	618,380				78,490,150	2,990,000	2,367,459	3.0	2.81	35,574,896
Laclede Steel Co.	1959	600,000	600,384	100.06	482,867	87,671,707	6,400,000	5,632,652	6.42	27.31	35,920,405
	1958	600,000	454,693	75.7	350,324	63,159,247	4,075,000	3,704,251	5.86	17.96	32,137,753
	1957	500,000	452,005	86.9	352,526	62,226,543	4,675,000	3,838,646	6.17	18.61	30,283,503
	1956	500,000	505,575	101.1	398,181	66,509,030	4,575,000	4,086,071	6.14	19.81	26,832,561
	1955	500,000	473,708	94.7	386,408	58,191,338	4,700,000	4,047,053	7.0	19.62	24,658,700
Keystone Steel & Wire Co.	1959	600,000	502,271	83.71	400,137	82,838,545	9,256,741	8,911,383	10.76	4.75	46,455,904
	1958	450,000	366,793	81.51	291,734	61,198,258	6,992,003	6,736,519	11.01	3.59	41,294,522
	1957	450,000	395,236	87.8	290,354	59,739,437	6,393,924	6,498,163	10.88	3.47	38,308,003
	1956	450,000	438,364	97.41	353,019	66,629,700	7,993,443	8,013,050	12.03	4.27	35,559,840
	1955	425,000	416,090	97.90	344,414	62,020,363	8,830,268	8,768,519	14.1	4.68	31,296,790
Continental Steel Corp.	1959	420,000	388,365	92.5	311,340	57,083,835	6,275,000	5,657,052	9.91	10.95	30,703,300
	1958	420,000	308,248	73.4	253,835	46,798,182	4,400,000	3,887,634	8.31	7.53	27,570,052
	1957	420,000	338,508	80.6	231,880	42,657,749	3,130,000	2,756,655	6.46	5.34	25,689,821
	1956	394,000	368,059	93.4	272,996	46,703,332	2,810,000	2,793,574	5.98	5.57	24,135,915
	1955	394,000	384,380	97.6	285,972	44,881,747	2,760,000	3,022,143	6.7	6.02	22,921,084
Atlantic Steel Co.	1959	276,000	217,744	78.89	170,288	29,433,860	1,635,000	1,349,526	4.6	3.29	13,957,828
	1958	400,000	146,643	36.6	129,046	22,083,434	241,000	353,235	1.60	0.77	12,892,199
GRAND TOTALS	1959	137,231,640	87,000,000*	63.3	64,500,000	$13,347,236,972	$765,038,455	$786,843,242	5.9	$3.83	$11,924,289,846
	1958	132,208,190	79,700,000	60.6	56,800,000	11,999,934,892	712,590,287	766,112,120	6.5	3.62	11,571,025,633
	1957	125,043,860	105,500,000	84.5	74,300,000	14,904,100,684	992,530,516	1,093,416,709	7.3	5.65	10,836,555,256
	1956	119,410,000	107,000,000	89.8	77,300,000*	14,329,463,893	1,050,902,715	1,044,506,967	7.2	6.96	9,790,957,624
	1955	117,257,517	109,000,000	93.0	78,800,000	13,225,990,770	1,027,297,914	1,034,621,961	7.8	7.16	9,132,827,147

* Estimated on operating rate.

Steel Prices: Hot and cold rolled sheet and strip, galvanized sheets, tinplate and high-speed tool steel.

COLD-ROLLED STRIP

At Pittsburgh, Cents Per Pound

	1949	1950	1951	1952	1953	1954
Jan.	4.00	4.20	4.75	4.65	5.10	5.45
Feb.	4.00	4.21	4.75	4.65	5.10	5.45
Mar.	4.00	4.21	4.75	4.65	5.10	5.45
Apr.	4.00	4.21	4.75	4.65	5.10	5.45
May	4.00	4.21	4.75	4.65	5.10	5.45
June	4.00	4.21	4.75	4.65	5.25	5.45
July	4.00	4.21	4.75	4.74	5.45	5.73
Aug.	4.00	4.21	4.75	5.10	5.45	5.75
Sept.	4.00	4.21	4.75	5.10	5.45	5.75
Oct.	4.00	4.21	4.75	5.10	5.45	5.75
Nov.	4.00	4.21	4.75	5.10	5.45	5.75
Dec.	4.08	4.75	4.75	5.10	5.45	5.75
Average	4.01	4.25	4.75	4.85	5.29	5.60

	1955	1956	1957	1958	1959	1960
Jan.	5.75	6.25	6.85	7.170	7.425	7.425
Feb.	5.75	6.25	6.85	7.170	7.425	7.425
Mar.	5.75	6.25	6.85	7.170	7.425	7.425
Apr.	5.75	6.25	6.85	7.170	7.425	7.425
May	5.75	6.25	6.85	7.170	7.425	7.425
June	5.75	6.25	6.85	7.170	7.425	7.425
July	6.12	6.25	7.17	7.170	7.425	7.425
Aug.	6.25	6.61	7.17	7.425	7.425	7.425
Sept.	6.25	6.85	7.17	7.425	7.425	7.425
Oct.	6.25	6.85	7.17	7.425	7.425	7.425
Nov.	6.25	6.85	7.17	7.425	7.425	7.425
Dec.	6.25	6.85	7.17	7.425	7.425	7.425
Average	5.98	6.48	7.01	7.276	7.425	7.425

COLD-ROLLED SHEETS

At Pittsburgh, Cents Per Pound

	1949	1950	1951	1952	1953	1954
Jan.	4.00	4.10	4.35	4.35	4.575	4.775
Feb.	4.00	4.10	4.35	4.35	4.575	4.775
Mar.	4.00	4.10	4.35	4.35	4.575	4.775
Apr.	4.00	4.10	4.35	4.35	4.575	4.775
May	4.00	4.10	4.35	4.35	4.575	4.775
June	4.00	4.10	4.35	4.35	4.660	4.775
July	4.00	4.10	4.35	4.395	4.775	4.939
Aug.	4.00	4.10	4.35	4.575	4.775	4.95
Sept.	4.00	4.10	4.35	4.575	4.775	4.95
Oct.	4.00	4.10	4.35	4.575	4.775	4.95
Nov.	4.00	4.10	4.35	4.575	4.775	4.95
Dec.	4.04	4.35	4.35	4.575	4.775	4.95
Average	4.00	4.12	4.35	4.449	4.682	4.862

	1955	1956	1957	1958	1959	1960
Jan.	4.95	5.325	5.75	6.050	6.275	6.275
Feb.	4.95	5.325	5.75	6.050	6.275	6.275
Mar.	4.95	5.325	5.75	6.050	6.275	6.275
Apr.	4.95	5.325	5.75	6.050	6.275	6.275
May	4.95	5.325	5.75	6.050	6.275	6.275
June	4.95	5.325	5.75	6.050	6.275	6.275
July	5.231	5.325	6.05	6.050	6.275	6.275
Aug.	5.325	5.580	6.05	6.275	6.275	6.275
Sept.	5.325	5.75	6.05	6.275	6.275	6.275
Oct.	5.325	5.75	6.05	6.275	6.275	6.275
Nov.	5.325	5.75	6.05	6.275	6.275	6.275
Dec.	5.325	5.75	6.05	6.275	6.275	6.275
Average	5.127	5.488	5.90	6.143	6.275	6.275

GALVANIZED SHEETS†

At Pittsburgh, Cents Per Pound

	1949	1950	1951	1952	1953	1954
Jan.	4.40	4.40	4.80	4.80	5.075	5.275
Feb.	4.40	4.40	4.80	4.80	5.075	5.275
Mar.	4.40	4.40	4.80	4.80	5.075	5.275
Apr.	4.40	4.40	4.80	4.80	5.075	5.275
May	4.40	4.40	4.80	4.80	5.075	5.275
June	4.40	4.40	4.80	4.80	5.160	5.275
July	4.40	4.40	4.80	4.855	5.275	5.439
Aug.	4.40	4.40	4.80	5.075	5.275	5.45
Sept.	4.40	4.40	4.80	5.075	5.275	5.45
Oct.	4.40	4.40	4.80	5.075	5.275	5.45
Nov.	4.40	4.40	4.80	5.075	5.275	5.45
Dec.	4.40	4.80	4.80	5.075	5.275	5.45
Average	4.40	4.43	4.80	4.919	5.182	5.362

	1955	1956	1957	1958	1959	1960
Jan.	5.45	5.85	6.30	6.600	6.875	6.875
Feb.	5.45	5.85	6.30	6.600	6.875	6.875
Mar.	5.45	5.85	6.30	6.600	6.875	6.875
Apr.	5.45	5.85	6.30	6.600	6.875	6.875
May	5.45	5.85	6.30	6.600	6.875	6.875
June	5.45	5.85	6.30	6.600	6.875	6.875
July	5.75	5.85	6.60	6.600	6.875	6.875
Aug.	5.85	6.120	6.60	6.875	6.875	6.875
Sept.	5.85	6.120	6.60	6.875	6.875	6.875
Oct.	5.85	6.30	6.60	6.875	6.875	6.875
Nov.	5.85	6.30	6.60	6.875	6.875	6.875
Dec.	5.85	6.30	6.60	6.875	6.875	6.875
Average	5.64	6.023	6.45	6.715	6.875	6.875

† Hot-dipped, 10 ga.

HOT-ROLLED SHEETS

At Pittsburgh, Cents Per Pound

	1949	1950	1951	1952	1953	1954
Jan.	3.28	3.35	3.60	3.60	3.775	3.925
Feb.	3.28	3.35	3.60	3.60	3.775	3.925
Mar.	3.28	3.35	3.60	3.60	3.775	3.925
Apr.	3.26	3.35	3.60	3.60	3.775	3.925
May	3.25	3.35	3.60	3.60	3.775	3.925
June	3.25	3.35	3.60	3.60	3.838	3.925
July	3.25	3.35	3.60	3.635	3.925	4.042
Aug.	3.25	3.35	3.60	3.775	3.925	4.05
Sept.	3.25	3.35	3.60	3.775	3.925	4.05
Oct.	3.25	3.35	3.60	3.775	3.925	4.05
Nov.	3.25	3.35	3.60	3.775	3.925	4.05
Dec.	3.29	3.60	3.60	3.775	3.925	4.05
Average	3.26	3.37	3.60	3.676	3.855	3.987

	1955	1956	1957	1958	1959	1960
Jan.	4.05	4.325	4.675	4.925	5.100	5.100
Feb.	4.05	4.325	4.675	4.925	5.100	5.100
Mar.	4.05	4.325	4.675	4.925	5.100	5.100
Apr.	4.05	4.325	4.675	4.925	5.100	5.100
May	4.05	4.325	4.675	4.925	5.100	5.100
June	4.05	4.325	4.675	4.925	5.100	5.100
July	4.26	4.325	4.925	4.925	5.100	5.100
Aug.	4.325	4.535	4.925	5.100	5.100	5.100
Sept.	4.325	4.675	4.925	5.100	5.100	5.100
Oct.	4.325	4.675	4.925	5.100	5.100	5.100
Nov.	4.325	4.675	4.925	5.100	5.100	5.100
Dec.	4.325	4.675	4.925	5.100	5.100	5.100
Average	4.189	4.459	4.800	4.995	5.100	5.100

HOT-ROLLED STRIP

At Pittsburgh, Cents Per Pound

	1949	1950	1951	1952	1953	1954
Jan.	3.28	3.25	3.50	3.50	3.725	3.925
Feb.	3.28	3.25	3.50	3.50	3.725	3.925
Mar.	3.28	3.25	3.50	3.50	3.725	3.925
Apr.	3.26	3.25	3.50	3.50	3.725	3.925
May	3.25	3.25	3.50	3.50	3.725	3.925
June	3.25	3.25	3.50	3.50	3.810	3.925
July	3.25	3.25	3.50	3.545	3.925	4.042
Aug.	3.25	3.25	3.50	3.725	3.925	4.05
Sept.	3.25	3.25	3.50	3.725	3.925	4.05
Oct.	3.25	3.25	3.50	3.725	3.925	4.05
Nov.	3.25	3.25	3.50	3.725	3.925	4.05
Dec.	3.25	3.50	3.50	3.725	3.925	4.05
Average	3.26	3.27	3.50	3.606	3.832	3.987

	1955	1956	1957	1958	1959	1960
Jan.	4.05	4.325	4.675	4.925	5.100	5.100
Feb.	4.05	4.325	4.675	4.925	5.100	5.100
Mar.	4.05	4.325	4.675	4.925	5.100	5.100
Apr.	4.05	4.325	4.675	4.925	5.100	5.100
May	4.05	4.325	4.675	4.925	5.100	5.100
June	4.05	4.325	4.675	4.925	5.100	5.100
July	4.256	4.325	4.925	4.925	5.100	5.100
Aug.	4.325	4.535	4.925	5.100	5.100	5.100
Sept.	4.325	4.675	4.925	5.100	5.100	5.100
Oct.	4.325	4.675	4.925	5.100	5.100	5.100
Nov.	4.325	4.675	4.925	5.100	5.100	5.100
Dec.	4.325	4.675	4.925	5.100	5.100	5.100
Average	4.181	4.459	4.80	4.998	5.100	5.100

STEEL PLATES

At Pittsburgh, Cents Per Pound

	1949	1950	1951	1952	1953	1954
Jan.	3.50	3.50	3.70	3.70	3.90	4.10
Feb.	3.50	3.50	3.70	3.70	3.90	4.10
Mar.	3.50	3.50	3.70	3.70	3.90	4.10
Apr.	3.50	3.50	3.70	3.70	3.90	4.10
May	3.40	3.50	3.70	3.70	3.90	4.10
June	3.40	3.50	3.70	3.70	3.98	4.10
July	3.40	3.50	3.70	3.74	4.10	4.217
Aug.	3.40	3.50	3.70	3.90	4.10	4.225
Sept.	3.40	3.50	3.70	3.90	4.10	4.225
Oct.	3.40	3.50	3.70	3.90	4.10	4.225
Nov.	3.40	3.50	3.70	3.90	4.10	4.225
Dec.	3.44	3.70	3.70	3.90	4.10	4.225
Average	3.43	3.52	3.70	3.78	4.01	4.162

	1955	1956	1957	1958	1959	1960
Jan.	4.225	4.50	4.85	5.12	5.30	5.30
Feb.	4.225	4.50	4.85	5.12	5.30	5.30
Mar.	4.225	4.50	4.85	5.12	5.30	5.30
Apr.	4.225	4.50	4.85	5.12	5.30	5.30
May	4.225	4.50	4.85	5.12	5.30	5.30
June	4.225	4.50	4.85	5.12	5.30	5.30
July	4.431	4.50	5.10	5.12	5.30	5.30
Aug.	4.50	4.71	5.10	5.30	5.30	5.30
Sept.	4.50	4.85	5.10	5.30	5.30	5.30
Oct.	4.50	4.85	5.10	5.30	5.30	5.30
Nov.	4.50	4.85	5.10	5.30	5.30	5.30
Dec.	4.50	4.85	5.10	5.30	5.30	5.30
Average	4.356	4.63	4.98	5.195	5.30	5.30

HIGH SPEED TOOL STEEL

18-4-1, Cents Per Pound

	1954	1955	1956	1957	1958	1959	1960
Jan.	152.50	154.00	160.00	168.00	179.50	184.00	184.00
Feb.	148.00	154.00	160.00	168.00	179.00	184.00	184.00
Mar.	148.00	154.00	160.00	168.00	179.50	184.00	184.00
Apr.	148.00	154.00	160.00	168.00	179.50	184.00	184.00
May	148.00	154.00	160.00	168.00	179.50	184.00	184.00
June	148.00	154.00	160.00	168.00	179.50	184.00	184.00
July	151.00	157.00	160.00	168.00	179.50	184.00	184.00
Aug.	154.00	160.00	164.80	168.00	184.00	184.00	184.00
Sept.	154.00	160.00	168.00	168.00	184.00	184.00	184.00
Oct.	154.00	160.00	168.00	174.00	184.00	184.00	184.00
Nov.	154.00	160.00	168.00	174.00	184.00	184.00	184.00
Dec.	154.00	160.00	168.00	174.00	184.00	184.00	184.00
Avg.	151.13	156.75	163.07	169.50	181.37	184.00	184.00

TINPLATE AT PITTSBURGH Dollars Per Base Box, Cokes—1-50-lb Coating

	1947	1948	1949	1950	1951	1952	1953
Jan.	$5.75	$6.80	$7.75	$7.50	$8.10	$8.70	$8.95
Feb.	5.75	6.80	7.75	7.50	8.70	8.70	8.95
Mar.	5.75	6.80	7.75	7.50	8.70	8.70	8.95
Apr.	5.75	6.80	7.75	7.50	8.70	8.70	8.95
May	5.75	6.70	7.75	7.50	8.70	8.70	8.95
June	5.75	6.70	7.75	7.50	8.70	8.70	8.95
July	5.75	6.72	7.75	7.50	8.70	8.75	8.95
Aug.	5.75	6.80	7.75	7.50	8.70	8.95	8.95
Sept.	5.75	6.80	7.75	7.50	8.70	8.95	8.95
Oct.	5.75	6.80	7.75	7.50	8.70	8.95	8.95
Nov.	5.75	6.80	7.75	7.50	8.70	8.95	8.95
Dec.	5.75	6.80	7.75	7.50	8.70	8.95	8.95
Average	5.75	6.77	7.75	7.50	8.67	8.81	8.95

	1954	1955	1956	1957	1958	1959	1960
Jan.	$8.95	$9.05	$9.45	$9.95	$10.30	$10.65	$10.65
Feb.	8.95	9.05	9.45	9.95	10.30	10.65	10.65
Mar.	8.95	9.05	9.45	9.95	10.30	10.65	10.65
Apr.	8.95	9.05	9.45	9.95	10.30	10.65	10.65
May	8.95	9.05	9.85	10.30	10.30	10.65	10.65
June	8.95	9.05	9.85	10.30	10.30	10.65	10.65
July	8.95	9.05	9.85	10.30	10.30	10.65	10.65
Aug.	8.95	9.05	9.85	10.30	10.30	10.65	10.65
Sept.	8.95	9.05	9.85	10.30	10.30	10.65	10.65
Oct.	9.05	9.45	9.85	10.30	10.30	10.65	10.65
Nov.	9.05	9.45	9.95	10.30	10.65	10.65	10.65
Dec.	9.05	9.45	9.95	10.30	10.65	10.65	10.65
Average	8.98	9.15	9.733	10.18	10.36	10.65	10.65

Steel Prices: Hot-rolled and cold-finished bars, wire, structurals, rails, pipe and stainless steel sheets.

MERCHANT BARS

At Pittsburgh, Cents Per Pound

	1949	1950	1951	1952	1953	1954
Jan.	3.45	3.45	3.70	3.70	3.95	4.15
Feb.	3.45	3.45	3.70	3.70	3.95	4.15
Mar.	3.43	3.45	3.70	3.70	3.95	4.15
Apr.	3.35	3.45	3.70	3.70	3.95	4.15
May	3.35	3.45	3.70	3.70	3.95	4.15
June	3.35	3.45	3.70	3.70	4.04	4.15
July	3.35	3.45	3.70	3.75	4.15	4.29
Aug.	3.35	3.45	3.70	3.95	4.15	4.30
Sept.	3.35	3.45	3.70	3.95	4.15	4.30
Oct.	3.35	3.45	3.70	3.95	4.15	4.30
Nov.	3.39	3.45	3.70	3.95	4.15	4.30
Dec.	3.38	3.70	3.70	3.95	4.15	4.30
Average	3.37	3.47	3.70	3.79	4.06	4.22

	1955	1956	1957	1958	1959	1960
Jan.	4.30	4.65	5.075	5.425	5.675	5.675
Feb.	4.30	4.65	5.075	5.425	5.675	5.675
Mar.	4.30	4.65	5.075	5.425	5.675	5.675
Apr.	4.30	4.65	5.075	5.425	5.675	5.675
May	4.30	4.65	5.075	5.425	5.675	5.675
June	4.30	4.65	5.075	5.425	5.675	5.675
July	4.56	4.65	5.425	5.425	5.675	5.675
Aug.	4.65	4.905	5.425	5.675	5.675	5.675
Sept.	4.65	5.075	5.425	5.675	5.675	5.675
Oct.	4.65	5.075	5.425	5.675	5.675	5.675
Nov.	4.65	5.075	5.425	5.675	5.675	5.675
Dec.	4.85	5.075	5.425	5.675	5.675	5.675
Average	4.46	4.813	5.220	5.529	5.675	5.675

CAST IRON WATER PIPE

At New York, Net Ton, 6-in. and Larger

	1949	1950	1951	1952	1953	1954
Jan.	$105.95	$94.95	$105.00	$109.00	$114.00	$115.50
Feb.	105.95	92.36	109.00	109.00	114.00	115.50
Mar.	105.95	91.50	109.00	109.00	114.00	115.50
Apr.	103.98	91.50	109.00	109.00	114.00	115.50
May	94.95	91.50	109.00	109.00	114.00	115.50
June	94.95	91.50	109.00	109.00	114.00	115.50
July	94.95	91.50	109.00	109.00	115.50	115.50
Aug.	94.95	91.50	109.00	109.00	115.50	115.50
Sept.	94.95	91.50	109.00	111.50	115.50	115.50
Oct.	94.95	95.00	109.00	114.00	115.50	115.50
Nov.	94.95	95.00	109.00	114.00	115.50	115.50
Dec.	94.94	98.00	109.00	114.00	115.50	115.50
Average	98.45	92.98	108.67	110.46	114.75	115.50

	1955	1956†	1957†	1958†	1959†	1960†
Jan.	$118.90	$121.50	$131.40	$138.70	$138.70	$138.50
Feb.	118.90	121.50	131.70	138.70	138.50	138.50
Mar.	118.90	121.50	131.70	138.70	138.50	138.50
Apr.	118.90	123.50	131.70	138.70	138.50	138.50
May	116.50	123.70	131.70	138.70	138.50	138.50
June	116.50	125.60	131.70	138.70	138.50	138.50
July	116.50	125.60	131.70	138.70	138.50	138.50
Aug.	116.50	131.40	131.70	138.70	138.50	138.50
Sept.	121.50	131.40	138.50	138.70	138.50	138.50
Oct.	121.50	131.40	138.50	138.50	138.50	138.50
Nov.	121.50	131.40	138.70	138.70	138.50	138.60
Dec.	121.50	131.40	138.70	138.70	138.50	138.60
Average	118.96	126.66	133.94	138.70	138.51	138.52

† U. S. Pipe and Foundry Index used.

BUTTWELD STEEL PIPE

At Pittsburgh, Per Net Ton, Carload Lots

	1949	1950	1951	1952	1953	1954
Jan.	$103.00	$108.00	$117.00	$117.00	$124.00	$136.50
Feb.	103.00	108.00	117.00	117.00	124.00	136.50
Mar.	103.00	108.00	117.00	117.00	124.00	136.50
Apr.	103.00	108.00	117.00	117.00	124.00	136.50
May	103.00	108.00	117.00	117.00	125.88	136.50
June	103.00	108.00	117.00	117.00	132.75	136.50
July	103.00	108.00	117.00	118.75	136.50	141.18
Aug.	103.00	108.00	117.00	124.00	136.50	141.50
Sept.	103.00	108.00	117.00	124.00	136.50	141.50
Oct.	103.00	108.00	117.00	124.00	136.50	141.50
Nov.	103.00	108.00	117.00	124.00	136.50	141.50
Dec.	105.00	117.00	117.00	124.00	136.50	141.50
Average	103.17	108.75	117.00	120.06	131.14	138.97

	1955	1956	1957	1958	1959	1960
Jan.	$141.50	$152.00	$164.00	$176.50	$182.50	$182.50
Feb.	141.50	152.00	166.25	176.50	182.50	182.50
Mar.	141.50	152.00	168.50	176.50	182.50	182.50
Apr.	141.50	152.00	168.50	176.50	182.50	182.50
May	141.50	152.00	168.50	176.50	182.50	182.50
June	141.50	152.00	168.50	176.50	182.50	182.50
July	151.75	152.00	176.50	176.50	182.50	182.50
Aug.	154.00	159.20	176.50	182.50	182.50	182.50
Sept.	154.00	164.00	176.50	182.50	182.50	182.50
Oct.	154.00	164.00	176.50	182.50	,81.50	182.50
Nov.	154.00	164.00	176.50	182.50	182.50	182.50
Dec.	154.00	164.00	176.50	182.50	182.50	182.50
Average	147.56	156.60	171.94	179.00	182.50	182.50

Computed from list discounts; 1-in. size std., T&C.

MANUFACTURER'S BRIGHT WIRE

At Pittsburgh, Cents Per Pound

	1949	1950	1951	1952	1953	1954
Jan.	4.33	4.50	4.85	4.85	5.225	5.525
Feb.	4.33	4.50	4.85	4.85	5.225	5.525
Mar.	4.22	4.50	4.85	4.85	5.225	5.525
Apr.	4.15	4.50	4.85	4.85	5.225	5.525
May	4.15	4.50	4.85	4.85	5.225	5.525
June	4.15	4.50	4.85	4.85	5.352	5.525
July	4.15	4.50	4.85	4.925	5.525	5.735
Aug.	4.15	4.50	4.85	5.225	5.525	5.75
Sept.	4.15	4.50	4.85	5.225	5.525	5.75
Oct.	4.15	4.50	4.85	5.225	5.525	5.75
Nov.	4.15	4.50	4.85	5.225	5.525	5.75
Dec.	4.29	4.85	4.85	5.225	5.525	5.75
Average	4.20	4.53	4.85	5.012	5.386	5.636

	1955	1956	1957	1958	1959	1960
Jan.	5.75	6.25	7.20	7.650	8.000	8.000
Feb.	5.75	6.60	7.20	7.650	8.000	8.000
Mar.	5.75	6.60	7.20	7.650	8.000	8.000
Apr.	5.75	6.60	7.20	7.650	8.000	8.000
May	5.75	6.60	7.20	7.650	8.000	8.000
June	5.75	6.60	7.20	7.650	8.000	8.000
July	6.125	6.60	7.65	7.850	8.000	8.000
Aug.	6.25	6.96	7.65	8.000	8.000	8.000
Sept.	6.25	7.20	7.65	8.000	8.000	8.000
Oct.	6.25	7.20	7.65	8.000	8.000	8.000
Nov.	6.25	7.40	7.65	8.000	8.000	8.000
Dec.	6.25	7.20	7.65	8.000	8.000	8.000
Average	5.989	6.80	7.43	7.796	8.000	8.000

STRUCTURAL STEEL SHAPES

At Pittsburgh, Cents Per Pound

	1949	1950	1951	1952	1953	1954
Jan.	3.25	3.40	3.65	3.65	3.85	4.10
Feb.	3.25	3.40	3.65	3.65	3.85	4.10
Mar.	3.25	3.40	3.65	3.65	3.85	4.10
Apr.	3.25	3.40	3.65	3.65	3.85	4.10
May	3.25	3.40	3.65	3.65	3.85	4.10
June	3.25	3.40	3.65	3.65	3.98	4.10
July	3.25	3.40	3.65	3.69	4.10	4.24
Aug.	3.25	3.40	3.65	3.85	4.10	4.25
Sept.	3.25	3.40	3.65	3.65	4.10	4.25
Oct.	3.25	3.40	3.65	3.85	4.10	4.25
Nov.	3.25	3.40	3.65	3.85	4.10	4.25
Dec.	3.31	3.85	3.65	3.85	4.10	4.25
Average	3.26	3.42	3.65	3.74	3.98	4.17

	1955	1956	1957	1958	1959	1960
Jan.	4.25	4.60	5.00	5.275	5.500	5.500
Feb.	4.25	4.60	5.00	5.275	5.500	5.500
Mar.	4.25	4.60	5.00	5.275	5.500	5.500
Apr.	4.25	4.60	5.00	5.275	5.500	5.500
May	4.25	4.60	5.00	5.275	5.500	5.500
June	4.25	4.60	5.00	5.275	5.500	5.500
July	4.51	4.80	5.275	5.275	5.500	5.500
Aug.	4.80	4.84	5.275	5.500	5.500	5.500
Sept.	4.80	5.00	5.275	5.500	5.500	5.500
Oct.	4.80	5.00	5.275	5.500	5.500	5.500
Nov.	4.80	5.00	5.275	5.500	5.500	5.500
Dec.	4.80	5.00	5.275	5.500	5.500	5.500
Average	4.41	4.75	5.178	5.369	5.500	5.500

COLD-FINISHED STEEL BARS

At Pittsburgh, Cents Per Pound

	1949	1950	1951	1952	1953	1954
Jan.	3.98	4.145	4.55	4.55	4.925	5.20
Feb.	3.98	4.145	4.55	4.55	4.925	5.20
Mar.	3.98	4.145	4.55	4.55	4.925	5.20
Apr.	3.98	4.145	4.55	4.55	4.925	5.20
May	3.98	4.145	4.55	4.55	4.925	5.20
June	3.98	4.145	4.55	4.55	5.041	5.20
July	3.98	4.145	4.55	4.625	5.20	5.39
Aug.	3.98	4.145	4.55	4.925	5.20	5.40
Sept.	3.98	4.145	4.55	4.925	5.20	5.40
Oct.	3.98	4.148	4.55	4.925	5.20	5.40
Nov.	3.98	4.15	4.55	4.925	5.20	5.40
Dec.	4.01	4.55	4.55	4.925	5.20	5.40
Average	3.98	4.179	4.55	4.712	5.072	5.30

	1955	1956	1957	1958	1959	1960
Jan.	5.40	5.90	6.85	7.300	7.850	7.850
Feb.	5.40	6.25	6.85	7.300	7.850	7.850
Mar.	5.40	6.25	6.85	7.300	7.850	7.850
Apr.	5.40	6.25	6.85	7.300	7.850	7.850
May	5.40	6.25	6.85	7.300	7.850	7.850
June	5.40	6.25	6.85	7.300	7.850	7.850
July	5.77	6.25	7.30	7.300	7.850	7.850
Aug.	5.90	6.61	7.30	7.850	7.850	7.850
Sept.	5.90	6.85	7.30	7.850	7.850	7.850
Oct.	5.90	6.85	7.30	7.850	7.850	7.850
Nov.	5.90	6.85	7.30	7.850	7.850	7.850
Dec.	5.90	6.85	7.30	7.850	7.850	7.850
Average	5.83	6.48	7.08	7.446	7.850	7.850

STEEL RAILS AT PITTSBURGH. No. 1 OH

Including Prices by Months and Yearly Averages in Dollars Per 100 lb

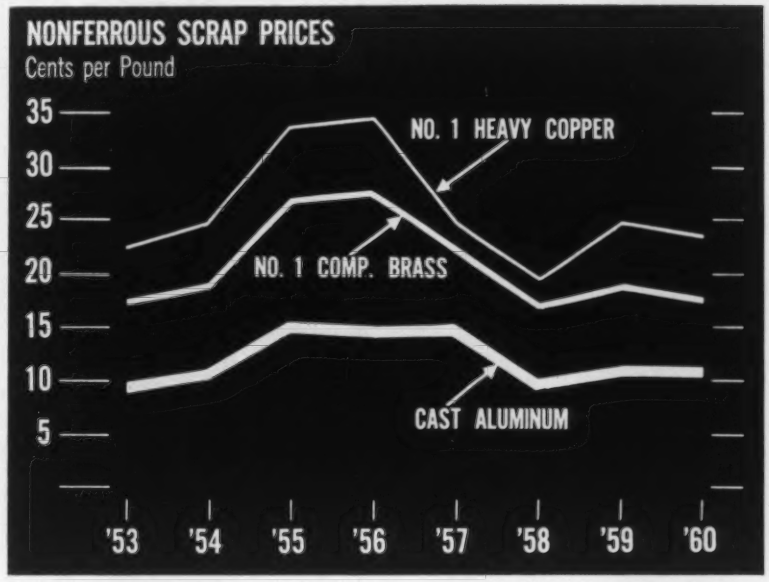
	1947	1948	1949	1950	1951	1952	1953
Jan.	$2.50	$2.75	$3.20	$3.40	$3.60	$3.60	$3.775
Feb.	2.50	2.75	3.20	3.40	3.60	3.60	3.775
Mar.	2.50	2.75	3.20	3.40	3.60	3.60	3.775
Apr.	2.50	2.75	3.20	3.40	3.60	3.60	3.775
May	2.50	2.70	3.20	3.40	3.60	3.60	3.991
June	2.50	2.70	3.20	3.40	3.60	3.60	4.181
July	2.50	2.80	3.20	3.40	3.60	3.635	4.325
Aug.	2.75	3.20	3.20	3.40	3.60	3.775	4.325
Sept.	2.75	3.20	3.20	3.40	3.60	3.775	4.325
Oct.	2.75	3.20	3.20	3.40	3.60	3.775	4.325
Nov.	2.75	3.20	3.20	3.40	3.60	3.775	4.325
Dec.	2.75	3.20	3.26	3.60	3.60	3.775	4.325
Average	2.60	2.93	3.21	3.42	3.60	3.676	4.102

	1954	1955	1956	1957	1958	1959	1960
Jan.	$4.325	$4.445	$4.725	$5.075	$5.525	$5.750	$5.750
Feb.	4.325	4.445	4.725	5.075	5.525	5.750	5.750
Mar.	4.325	4.445	4.725	5.275	5.525	5.750	5.750
Apr.	4.325	4.445	4.725	5.275	5.525	5.750	5.750
May	4.325	4.445	4.725	5.275	5.525	5.750	5.750
June	4.325	4.445	4.725	5.275	5.525	5.750	5.750
July	4.442	4.665	4.725	5.525	5.525	5.750	5.750
Aug.	4.445	4.725	5.135	5.525	5.525	5.750	5.750
Sept.	4.445	4.725	5.075	5.525	5.750	5.750	5.750
Oct.	4.445	4.725	5.075	5.525	5.750	5.750	5.750
Nov.	4.445	4.725	5.075	5.525	5.750	5.750	5.750
Dec.	4.445	4.725	5.075	5.525	5.750	5.750	5.750
Average	4.387	4.579	4.876	5.242	5.60	5.750	5.750

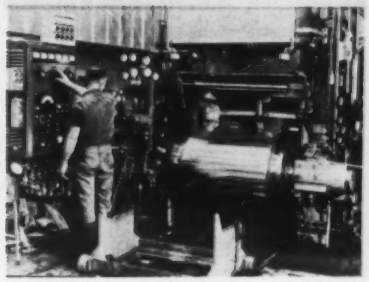
STAINLESS STEEL SHEETS

No. 304, Cents Per Pound

	1954	1955	1956	1957	1958	1959	1960
Jan.	48.75	44.50	47.25	53.25	55.00	55.00	55.00
Feb.	48.75	44.50	47.25	53.25	55.00	55.00	55.00
Mar.	48.75	44.50	47.25	53.25	55.00	55.00	55.00
Apr.	48.75	44.50	47.25	53.25	55.00	55.00	55.00
May	45.63	44.50	47.25	53.25	55.00	55.00	55.00
June	43.75	44.50	47.25	53.25	55.00	55.00	55.90
July	43.75	46.56	47.25	55.50	55.00	55.00	55.00
Aug.	43.75	47.25	47.25	55.50	55.00	55.00	55.00
Sept.	43.75	47.25	49.06	55.50	55.00	55.00	52.00
Oct.	43.75	47.25	50.25	55.50	55.00	55.00	52.00
Nov.	43.75	47.25	50.25	55.50	55.00	55.00	52.00
Dec.	44.26	47.25	50.25	55.50	55.00	55.00	52.00
Average	45.62	45.81	48.15	54.38	55.00	55.00	54.00



Nonferrous Metals and Scrap



ALUMINUM SCRAP, CAST

Cents Per Pound, f.o.b. New York*

	1955	1956	1957	1958	1959	1960
Jan.	11.50	17.25	11.12	10.38	10.00	11.50
Feb.	12.94	17.25	10.37	10.25	9.75	11.50
Mar.	14.75	17.25	10.25	10.25	9.75	11.50
Apr.	14.63	16.88	10.62	9.88	9.75	11.50
May	12.85	14.05	10.75	9.75	9.75	11.50
June	12.00	11.50	10.75	9.25	10.38	11.50
July	14.38	12.50	10.75	9.25	11.20	11.50
Aug.	16.50	13.00	11.15	9.31	11.50	10.88
Sept.	17.10	13.50	11.25	9.50	11.50	10.25
Oct.	17.13	13.00	11.15	9.50	11.50	9.50
Nov.	17.13	11.75	10.87	9.88	11.50	9.25
Dec.	17.13	12.25	10.75	9.75	11.50	9.25
Average	14.84	14.18	10.82	9.75	10.67	10.80

* Dealers' Buying Price.

Brass SCRAP, No. 1 COMP

Cents Per Pound, f.o.b. New York*

	1955	1956	1957	1958	1959	1960
Jan.	21.31	31.50	24.12	15.25	17.00	18.75
Feb.	23.19	31.50	21.75	17.75	17.81	18.81
Mar.	24.10	33.60	20.75	14.38	19.69	17.06
Apr.	25.88	32.12	21.12	14.75	20.20	16.75
May	24.90	27.00	20.95	14.75	19.25	16.75
June	24.94	23.75	20.12	16.00	19.00	17.25
July	26.69	24.00	18.75	15.95	17.75	17.63
Aug.	28.81	25.50	18.60	19.94	17.88	18.25
Sept.	30.25	26.00	16.69	15.75	18.56	18.25
Oct.	29.31	25.75	16.15	17.15	18.85	17.13
Nov.	30.30	23.75	16.00	17.50	19.50	16.75
Dec.	31.75	24.00	15.75	17.75	18.63	16.75
Average	26.79	27.37	19.23	16.41	18.68	17.51

* Dealers' Buying Price.

No. 1 HEAVY COPPER SCRAP

Cents Per Pound, f.o.b. New York*

	1955	1956	1957	1958	1959	1960
Jan.	27.00	41.00	26.63	17.81	22.50	26.00
Feb.	29.19	40.50	23.75	17.25	23.94	26.38
Mar.	30.15	43.40	23.75	16.94	25.94	23.70
Apr.	31.44	40.75	24.09	17.75	25.40	23.25
May	31.05	35.30	23.60	17.85	25.38	23.25
June	33.00	31.25	22.75	19.81	25.06	22.88
July	33.75	30.13	21.25	20.05	23.15	23.19
Aug.	35.63	32.13	20.85	19.96	23.50	23.63
Sept.	38.65	31.38	18.28	19.56	24.69	23.75
Oct.	36.69	29.25	18.95	21.80	24.35	22.38
Nov.	38.25	27.65	19.00	23.66	26.38	21.75
Dec.	41.00	27.75	19.00	23.80	25.45	21.75
Average	33.82	34.21	21.82	19.69	24.65	23.49

* Dealers' Buying Price.

BRASS INGOTS, 85-5-5-5

No. 115, Cents Per Pound, Cars*

	1955	1956	1957	1958	1959	1960
Jan.	30.38	42.00	34.75	26.38	28.00	30.75
Feb.	32.81	42.00	32.25	25.75	28.50	30.75
Mar.	33.80	44.00	31.50	24.88	30.81	30.75
Apr.	37.00	43.50	31.50	25.00	31.25	29.25
May	35.30	40.60	31.10	25.25	30.25	29.25
June	34.50	36.25	30.25	26.31	30.25	29.25
July	36.50	35.50	29.50	27.00	29.65	29.25
Aug.	39.19	37.75	29.35	27.00	29.25	29.25
Sept.	42.50	37.75	27.62	27.00	30.38	29.25
Oct.	41.75	37.06	27.35	28.40	29.25	28.75
Nov.	41.75	35.00	26.75	28.00	30.38	28.25
Dec.	42.00	35.00	26.75	27.75	30.75	28.25
Average	37.29	39.70	29.99	26.56	29.89	29.42

* Delivered.

INGOT BRASS AND BRONZE

Short Tons of Shipments, Monthly

	1956	1957	1958	1959	1960
Jan.	27,736	25,681	20,468	22,046	22,695
Feb.	24,949	20,769	17,413	23,746	23,129
Mar.	28,310	21,948	18,825	26,109	23,232
Apr.	25,808	23,507	18,009	26,115	20,413
May	23,437	22,037	17,191	23,967	19,885
June	18,842	18,888	17,962	22,922	19,625
July	17,364	16,695	16,658	20,346	14,887
Aug.	23,812	19,654	17,882	21,741	20,216
Sept.	20,929	19,670	20,540	22,685	18,259
Oct.	23,045	22,800	23,225	23,067	18,948
Nov.	21,818	19,767	20,758	22,283	19,500*
Dec.	18,046	16,875	18,676	29,535	19,800*
Total	274,096	248,291	227,607	284,562	240,589*

* Estimate. Source: Brass & Bronze Ingot Institute.

BRONZE INGOTS, 88-10-2

No. 245, Cents Per Pound, Cars*

	1955	1956	1957	1958	1959	1960
Jan.	35.13	48.75	39.50	29.88	32.25	36.00
Feb.	37.56	48.75	36.82	29.25	33.00	36.00
Mar.	38.95	50.75	35.50	28.38	36.75	36.00
Apr.	42.25	50.25	35.50	28.50	38.00	34.00
May	40.55	46.80	35.10	28.75	35.00	34.00
June	39.75	42.25	34.22	30.00	35.00	34.00
July	41.75	41.50	33.50	30.75	34.10	34.00
Aug.	45.50	43.50	33.35	30.75	33.50	34.00
Sept.	48.75	43.50	31.25	30.75	34.63	34.00
Oct.	48.00	42.63	30.85	32.15	33.50	33.25
Nov.	48.00	40.00	30.25	32.25	36.88	32.50
Dec.	48.75	40.00	30.25	32.25	38.00	32.50
Average	42.91	44.89	30.82	30.30	34.72	34.19

* Delivered.

CADMIUM PRICES, STICKS, BARS

Dollars Per Pound, 1 to 5-Ton Lots

September 11, 1950 to November 30, 1950	2.40
December 2, 1950 to May 26, 1952	2.55
May 27, 1952 to August 5, 1952	2.25
August 6, 1952 to November 30, 1952	2.00
December 1, 1952 to December 13, 1952	1.50-2.00
December 13, 1952 to January 24, 1953	1.75-2.00
January 26, 1953 to January 31, 1954	2.00
February 1, 1954 to December 25, 1957	1.70
December 26, 1957 to September 30, 1958	1.55
October 1, 1958 to April 5, 1959	1.45
April 6, 1959 to October 7, 1959	1.30
October 8, 1959 to September 27, 1960	1.40
September 28, 1960 to December 31, 1960	1.50

COBALT, 97 TO 99 PCT.

Per Pound, 100 lb Lots Since 1947

January 2, 1951 to October 1, 1951	$2.10
October 1, 1951 to October 31, 1953	2.40
November 2, 1953 to December 5, 1956	$2.60 to 2.67
December 6, 1956 to February 13, 1957	2.35 to 2.42
February 14, 1957 to February 11, 1959	2.00 to 2.07
February 12, 1959 to June 13, 1960	1.75 to 1.82
June 14, 1960 to December 31, 1960	1.50 to 1.57

A weekly column on the nonferrous market as well as complete nonferrous and metal powder prices are a regular Iron Age feature.

REMELT ALUMINUM INGOT

No. 12, Cents Per Pound, Cars*

	1955	1956	1957	1958	1959	1960
Jan.	23.44	32.00	23.31	22.19	21.75	25.00
Feb.	25.98	30.63	22.62	21.50	21.75	25.00
Mar.	29.65	30.10	22.81	21.38	21.75	25.00
Apr.	29.38	30.25	22.88	21.34	21.75	25.00
May	26.70	27.00	21.70	21.36	21.75	25.00
June	26.00	24.63	21.31	21.38	21.75	25.00
July	26.89	25.19	22.09	21.38	23.35	25.00
Aug.	29.69	27.44	23.00	21.75	23.75	24.50
Sept.	30.35	27.25	22.69	21.75	23.75	24.00
Oct.	30.75	25.75	22.55	21.75	23.75	23.25
Nov.	31.00	24.07	22.50	21.75	23.75	23.00
Dec.	31.25	24.25	22.50	22.00	24.25	23.00
Average	28.41	27.38	22.48	21.63	22.76	24.40

* Delivered.

Prices: Straits tin, electrolytic copper, nickel, aluminum, antimony and U.S. primary aluminum production.

STRAITS TIN, PROMPT PRICE

Cents Per Pound, at New York

	1949	1950	1951	1952	1953	1954
Jan.	$1.03	75.75	$1.72	$1.097	$1.215	84.83
Feb.	$1.03	74.50	$1.83	$1.215	$1.215	85.04
Mar.	$1.03	75.62	$1.45	$1.215	$1.214	91.88
Apr.	$1.03	76.38	$1.46	$1.215	$1.011	96.13
May	$1.03	77.50	$1.40	$1.215	97.50	93.51
June	$1.03	77.70	$1.18	$1.215	92.92	94.19
July	$1.03	89.88	$1.06	$1.215	81.90	96.54
Aug.	$1.03	$1.02	$1.03	$1.212	80.71	93.39
Sept.	$1.02	$1.01	$1.03	$1.213	82.36	93.52
Oct.	95.49	$1.13	$1.03	$1.212	80.86	93.05
Nov.	90.11	$1.38	$1.03	$1.213	83.11	91.14
Dec.	79.06	$1.45	$1.03	$1.215	84.61	88.57
Average	99.22	95.53	$1.27	$1.204	95.79	91.82

	1955	1956	1957	1958	1959	1960
Jan.	87.28	104.82	101.53	92.94	99.41	99.85
Feb.	90.78	100.78	101.06	93.90	102.79	101.13
Mar.	91.04	100.67	99.70	94.42	103.03	100.09
Apr.	91.40	99.27	99.30	92.95	102.50	99.28
May	91.37	97.01	98.29	92.99	103.07	99.54
June	93.64	94.19	98.06	94.49	103.84	101.35
July	96.82	96.24	96.55	94.89	102.31	103.49
Aug.	96.48	99.08	94.26	94.99	102.33	102.85
Sept.	96.26	103.83	93.44	94.05	102.43	102.41
Oct.	96.09	106.87	91.89	95.46	102.21	103.28
Nov.	97.87	110.91	89.23	99.24	100.99	102.82
Dec.	107.76	108.00	92.38	98.99	99.14	102.00*
Average	94.73	$1.018	96.31	95.17	102.00	101.51*

* Estimate.

ANTIMONY, U. S. METAL

Cents Per Pound, F.O.B. Laredo, Tex.

	1955	1956	1957	1958	1959	1960
Jan.	28.50	33.50	33.50	33.50	29.50	29.50
Feb.	28.50	33.50	33.50	31.50	29.50	29.50
Mar.	28.50	33.50	33.50	29.50	29.50	29.50
Apr.	28.50	33.50	33.50	29.50	29.50	29.50
May	28.50	33.50	33.50	29.50	29.50	29.50
June	28.50	33.50	33.50	29.50	29.50	29.50
July	28.50	33.50	33.50	29.50	29.50	29.50
Aug.	29.75	33.50	33.50	29.50	29.50	29.50
Sept.	33.50	33.50	33.50	29.50	29.50	29.50
Oct.	33.50	33.50	33.50	29.50	29.50	29.50
Nov.	33.50	33.50	33.50	29.50	29.50	29.50
Dec.	33.50	33.50	33.50	29.50	29.50	29.50
Average	30.27	33.50	33.50	30.00	29.50	29.50

MAGNESIUM, 99.8 PCT INGOT

Cents Per Pound, at Freeport, Tex.

1934	26.00	1943	20.50	1952	24.50
1935	30.00	1944	20.50	1953	26.94
1936	30.00	1945	20.50	1954	27.75
1937	30.00	1946	20.50	1955	30.44
1938	30.00	1947	20.50	1956	36.00
1939	27.00	1948	20.50	1957	36.00
1940	27.00	1949	20.50	1958	36.00
1941	27.00	1950	22.02	1959	36.00
1942	22.50	1951	24.50	1960	36.00

ELECTROLYTIC COPPER

Cents Per Pound, Conn. Valley

	1949	1950	1951	1952	1953	1954
Jan.	23.50	18.50	24.50	24.50	24.50	29.75
Feb.	23.50	18.50	24.50	24.50	25.41	29.75
Mar.	23.49	18.50	24.50	24.50	30.58	29.87
Apr.	21.72	18.94	24.50	24.50	30.70	29.97
May	18.05	19.92	24.50	24.50	29.85	30.00
June	16.66	22.27	24.50	24.50	29.88	30.00
July	17.33	22.50	24.50	24.50	29.88	30.00
Aug.	17.63	22.54	24.50	24.50	29.39	30.00
Sept.	17.63	23.25	24.50	24.50	29.50	30.00
Oct.	17.63	24.50	24.50	24.50	29.61	30.00
Nov.	18.42	24.50	24.50	24.50	29.75	30.00
Dec.	18.50	24.50	24.50	24.50	29.75	30.00
Average	19.51	21.54	24.50	24.50	29.07	29.95

	1955	1956	1957	1958	1959	1960
Jan.	30.17	43.00	36.00	25.89	29.00	33.00
Feb.	33.00	44.026	33.14	25.00	29.94	33.00
Mar.	33.22	46.00	32.14	25.00	31.14	33.00
Apr.	36.00	46.00	32.00	25.00	31.50	33.00
May	36.00	46.00	32.00	25.00	31.50	33.00
June	36.00	46.00	30.90	25.26	31.50	33.00
July	36.00	41.88	29.25	26.02	30.52	33.00
Aug.	38.26	40.00	28.72	26.50	30.00	33.00
Sept.	43.00	40.00	27.00	26.50	30.57	33.00
Oct.	43.00	39.33	27.00	27.61	30.57	31.05
Nov.	43.00	36.00	27.00	29.00	32.50	30.00
Dec.	43.00	36.00	27.00	29.00	33.00	30.00*
Average	37.55	42.00	30.27	26.30	30.98	32.34*

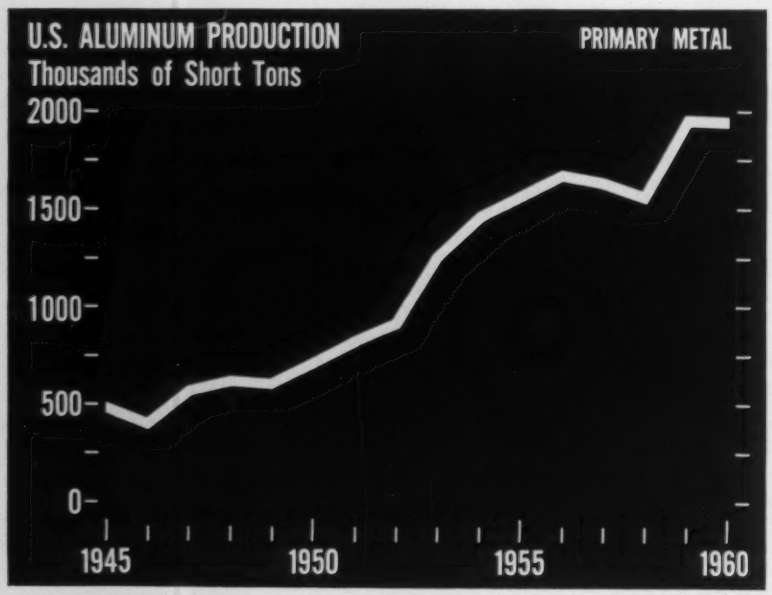
* Estimate.

U. S. PRODUCTION OF PRIMARY ALUMINUM (Short tons)

	1952	1953	1954	1955	1956	1957	1958	1959	1960
Jan.	76,934	89,895	116,247	128,203	140,394	147,029	139,910	156,701	164,024
Feb.	72,374	92,649	110,483	116,236	132,763	119,059	121,980	142,116	156,826
Mar.	77,069	104,920	122,339	130,272	145,895	135,706	134,019	157,189	170,688
Apr.	76,880	102,071	120,431	126,394	144,726	139,152	124,999	155,213	168,596
May	80,804	105,477	125,144	131,128	150,800	145,174	126,327	163,857	175,883
June	77,476	104,152	120,758	127,633	145,726	138,007	115,326	167,323	171,356
July	78,368	109,285	126,162	132,667	151,624	142,041	118,541	179,194	177,564
Aug.	85,175	110,545	125,296	133,551	92,406	143,448	125,416	172,817	172,973
Sept.	76,882	109,333	120,332	130,606	132,316	129,277	124,713	168,205	162,882
Oct.	77,312	108,219	125,089	134,656	149,125	133,759	137,419	173,742	167,015
Nov.	74,639	105,637	121,252	133,689	145,061	135,024	140,962	153,666	162,500*
Dec.	83,409	110,291	127,035	140,748	148,391	140,036	152,301	162,996	145,213*
Total	937,321	1,252,015	1,458,500	1,565,783	1,678,954	1,647,712	1,565,556	1,953,019	1,995,500*

* Estimate.

Source: U. S. Bureau of Mines and Aluminum Association.



ELECTROLYTIC NICKEL

Cents Per Pound, New York, Duty Paid

July 22, 1948 to Feb. 15, 1949	42.90
Feb. 16, 1949 to Oct. 4, 1949	42.93
Oct. 5, 1949 to May 31, 1950	42.97
June 1, 1950 to Dec. 12, 1950	51.22
Dec. 13, 1950 to June 1, 1951	53.55
June 2, 1951 to Jan. 13, 1953	59.58
Jan. 14, 1953 to Nov. 23, 1954	63.08
(F. O. B., Port Colbourne, Canada)	
Nov. 24, 1954 to Dec. 5, 1956	64.50
Dec. 6, 1956 to Dec. 31, 1960	74.00

ALUMINUM 99 PCT INGOT

Cents Per Pound, Freight Allowed

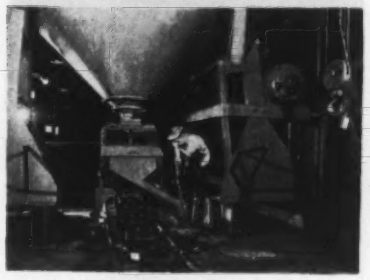
	1949	1950	1951	1952	1953	1954
Jan.	17.00	17.00	19.00	19.00	20.23	21.50
Feb.	17.00	17.00	19.00	19.00	20.50	21.50
Mar.	17.00	17.00	19.00	19.00	20.50	21.50
Apr.	17.00	17.00	19.00	19.00	20.50	21.50
May	17.00	17.20	19.00	19.00	20.50	21.50
June	17.00	17.50	19.00	19.00	20.50	21.50
July	17.00	17.50	19.00	19.00	20.94	21.50
Aug.	17.00	17.50	19.00	20.00	21.50	22.08
Sept.	17.00	17.69	19.00	20.00	21.50	22.20
Oct.	17.00	19.00	19.00	20.00	21.50	22.20
Nov.	17.00	19.00	19.00	20.00	21.50	22.20
Dec.	17.00	19.00	19.00	20.00	21.50	22.20
Average	17.00	17.70	19.00	19.42	20.93	21.78

	1955	1956	1957	1958	1959	1960
Jan.	22.83	24.40	27.10	28.10	26.80	28.10
Feb.	23.20	24.40	27.10	28.10	26.80	28.10
Mar.	23.20	24.50	27.10	28.10	26.80	28.10
Apr.	23.20	25.90	27.10	26.10	26.80	28.10
May	23.20	25.90	27.10	26.10	26.80	28.10
June	23.20	25.90	27.10	26.10	26.80	28.10
July	23.20	25.90	27.10	26.10	26.80	28.10
Aug.	24.40	26.70	28.10	26.80	26.80	28.10
Sept.	24.40	27.10	28.10	26.80	26.80	28.10
Oct.	24.40	27.10	28.10	26.80	26.80	26.00
Nov.	24.40	27.10	28.10	26.80	26.80	26.00
Dec.	24.40	27.10	28.10	26.80	27.39	26.00*
Average	23.67	26.00	27.52	26.64	26.85	27.58*

* Estimate.

Metal Powders

Prices: Lead, zinc . . . U. S. primary magnesium production . . . Metal powder prices including iron and copper.



IRON POWDER PRICES

Cents Per Pound, Averaged Monthly

	Sponge, 98+ Pct Fe, Carload Lots, −100 Mesh	Electrolytic, Domestic, 99.87 Pct Fe, −100 Mesh
1954 Average	16.35	40.75
1955 Average	9.5	36.5
1956 Average	9.5	36.5
1957 Average	9.50	36.5
1958 Average	11.25	29.50 to 33.00
1959 Average	11.50	34.50
1960 Average	11.50	27.25

LEAD PRICE, COMMON GRADE

Cents Per Pound, at St. Louis

	1948	1949	1950	1951	1952	1953	1954
Jan.	15.00	21.50	12.00	17.00	19.00	14.19	13.26
Feb.	15.00	21.50	12.00	17.00	19.00	13.50	12.82
Mar.	15.00	18.98	10.96	17.00	19.00	13.40	12.94
Apr.	17.21	15.15	10.63	17.00	18.91	12.64	13.91
May	17.50	13.72	11.72	17.00	15.73	12.74	14.00
June	17.50	12.00	11.81	17.00	15.08	13.41	14.11
July	17.80	13.56	11.66	17.00	16.00	13.58	14.00
Aug.	19.50	14.99	12.93	17.00	16.00	14.00	14.06
Sept.	19.50	15.05	15.80	17.00	16.00	13.74	14.60
Oct.	19.50	13.42	16.00	18.93	14.40	13.50	14.98
Nov.	21.50	12.52	17.00	19.00	14.18	13.50	15.00
Dec.	21.50	12.00	17.00	19.00	14.13	13.50	15.00
Average	18.04	15.37	13.29	17.49	16.45	13.48	14.06

	1955	1956	1957	1958	1959	1960
Jan.	15.00	15.96	15.80	12.80	12.42	11.80
Feb.	15.00	15.80	15.80	12.80	11.42	11.80
Mar.	15.00	15.80	15.80	12.80	11.30	11.80
Apr.	15.00	15.80	15.80	11.85	11.01	11.80
May	15.00	15.80	15.023	11.52	11.70	11.80
June	15.00	15.80	14.12	11.04	11.80	11.80
July	14.90	15.80	13.80	10.80	11.80	11.80
Aug.	14.80	15.80	13.80	10.65	12.09	11.80
Sept.	14.94	15.80	13.80	10.68	12.80	11.80
Oct.	15.30	15.80	13.51	12.47	12.80	11.80
Nov.	15.30	15.80	13.30	12.80	12.80	11.80
Dec.	15.30	15.80	12.80	12.80	12.32	11.30
Average	15.05	15.81	14.45	11.92	12.02	11.75

* Estimate.

U. S. PRODUCTION OF PRIMARY MAGNESIUM

Short Tons

Month	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
January	988	1,002	1,876	7,425	9,908	6,446	5,089	6,337	7,391	5,272	1,877	3,355
February	884	913	1,709	7,794	9,078	5,856	4,646	5,908	6,617	3,526	1,725	3,180
March	988	948	1,885	8,893	10,352	6,545	4,942	6,347	7,383	3,235	1,925	3,600
April	958	957	2,043	8,800	9,751	6,203	1,859	6,081	7,222	2,772	1,808	3,280
May	987	972	2,194	9,093	9,116	6,460	4,277	6,359	7,227	2,469	2,668	3,240
June	950	1,175	2,512	8,670	7,286	6,190	4,757	6,098	6,718	1,784	2,778	3,075
July	985	1,132	2,958	9,529	6,207	6,049	5,112	1,136	6,598	1,799	2,850	3,120
August	970	1,400	3,418	9,771	6,265	5,771	5,880	2,314	6,958	1,845	2,967	3,200
September	974	1,635	4,166	8,422	6,076	5,325	5,923	6,128	6,296	1,791	2,846	3,290
October	941	1,690	5,147	8,990	6,341	5,149	6,296	6,735	6,276	1,927	3,018	3,475
November	969	1,760	6,043	9,123	6,227	4,942	6,130	6,818	5,823	1,814	3,042	3,345*
December	1,004	1,942	6,923	9,323	6,467	4,788	6,230	7,085	5,648	1,862	3,529	3,460*
Total	11,598	15,726	40,914	105,833	93,075	69,724	61,131	68,346	78,865	30,096	31,033	39,630*

Producers' reports to Bureau of Mines and Magnesium Assn. * Estimate.

COPPER POWDER PRICE

Cents per lb. F.O.B. Mill—100 Mesh

	Electrolytic	Hydrogen Reduced
1954 Average	43.50	43.50
1955 Average	53.37	53.37
1956 Average	60.50	60.50
1957 Average	45.67	49.75
1958 Average	41.25	48.8
1959 Average	48.25	43.25
1960 Average	14.75†	14.75†

† Plus cost of metal.

SHIPMENTS OF IRON AND IRON-BASE POWDER

Total Net Tons, Major Classes*

	Total	Bearings and Parts	Friction Materials	Electronics & Magnetic Applications	Miscellaneous	Welding Electrodes Flame Cutting
1948	3,520	1,685	25	990	820	
1949	3,235	1,746	14	935	540	
1950	3,942	1,570	23	1,611	738	
1951	3,651	2,150	1.5	900	600	
1952	4,048	2,109	1.0	336	1,602	
1953	6,255	3,457	14.4	1,599	1,189	
1954	7,835	3,445	75.0	905	3,410	
1955	20,724	9,990	99.5	1,097.5	9,537	
1956	22,195	8,900	144.5	1,071	12,030	
1557	25,389	11,893	217.5	970	1,172	11,137
1958	21,479	9,944	141.0	1,425	966	9,003
1959	33,782	18,455	181.0	1,565	1,516	12,065
1960†	32,501	16,730	184.0	1,975	1,563	12,049

* Domestic. † Estimates.

IMPORTS OF IRON POWDER

Net Tons

1952	5,627
1953	6,964
1954	9,835
1955	10,986
1956	10,125
1957	5,000
1958	557
1959	392
1960	588*

* Estimated.

PRIME WESTERN ZINC PRICE

Cents Per Pound, at E. St. Louis

	1948	1949	1950	1951	1952	1953	1954		1955	1956	1957	1958	1959	1960
Jan.	11.69	18.18	9.48	18.22	20.29	13.43	10.26	Jan.	12.00	13.44	13.50	10.00	11.50	12.90
Feb.	12.61	18.20	10.47	18.22	20.29	12.31	9.88	Feb.	12.00	13.50	13.50	10.00	11.42	13.00
Mar.	12.61	17.76	10.66	18.22	20.29	11.86	10.16	Mar.	12.00	13.50	13.50	10.00	11.00	13.00
Apr.	12.61	14.76	11.41	18.25	20.29	11.83	10.75	Apr.	12.43	13.50	13.50	10.00	11.00	13.00
May	12.64	12.58	12.71	18.25	20.33	11.83	10.79	May	12.50	13.50	11.93	10.00	11.00	13.00
June	12.65	10.27	15.49	18.25	16.57	11.83	11.46	June	12.75	13.50	10.84	10.00	11.00	13.00
July	13.09	10.06	15.72	18.25	15.83	11.67	11.50	July	13.00	13.50	10.00	10.00	11.00	13.00
Aug.	15.65	10.70	15.72	18.26	14.88	11.53	11.50	Aug.	13.00	13.50	10.00	10.00	11.00	13.00
Sept.	15.65	10.77	17.82	18.29	14.86	10.68	11.98	Sept.	13.40	13.50	10.00	10.00	11.33	13.00
Oct.	15.74	10.04	18.22	20.22	14.08	10.50	12.00	Oct.	13.50	13.50	10.00	10.87	12.21	13.00
Nov.	17.27	10.46	18.22	20.29	13.33	10.50	12.00	Nov.	13.50	13.50	10.00	11.42	12.50	13.00
Dec.	18.15	10.47	18.22	20.29	13.33	10.50	12.00	Dec.	13.50	13.50	10.00	11.50	12.50	12.75
Average	14.20	12.85	14.51	18.75	17.03	11.54	11.19	Average	12.79	13.49	11.39	10.32	11.46	12.97

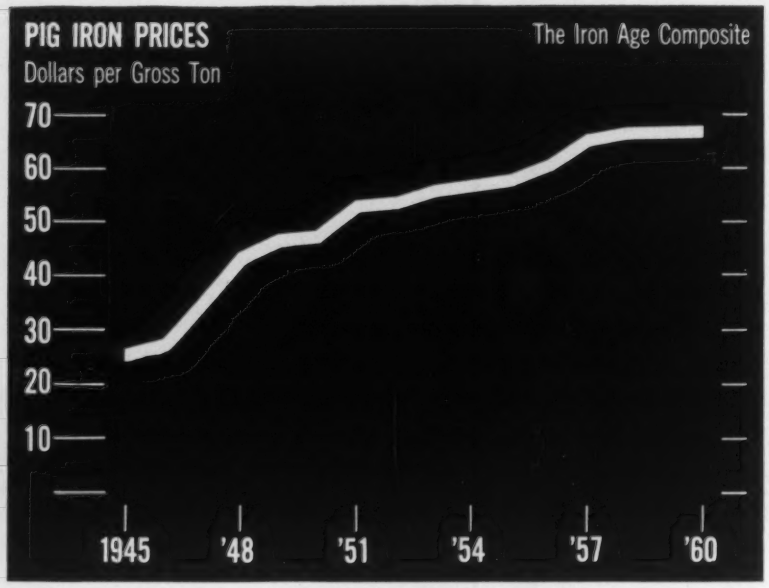
COPPER AND COPPER-BASE POWDER SHIPMENTS, FLAKE AND GRANULAR

Net Tons

1953	17,000
1954	14,800
1955	21,500
1956	19,000
1957	17,900
1958	18,000
1959	24,500
1960	19,500*

* Iron Age estimate.

Pig Iron and Iron Ore



COMPOSITE PIG IRON PRICE

Average of THE IRON AGE quotations on basic pig iron at Valley furnaces and foundry iron at Chicago, Birmingham, Buffalo, Valley and Philadelphia, in gross tons.

	1940	1941*	1945*	1946	1947	1948
Jan.	$22.61	$23.45	$23.61	$25.37	$30.14	$39.83
Feb.	22.61	23.45	23.86	25.37	30.15	40.27
Mar.	22.61	23.53	24.61	25.75	32.92	40.32
Apr.	22.61	23.61	24.61	26.12	33.15	40.11
May	22.61	23.61	24.61	26.45	33.15	40.33
June	22.61	23.61	24.61	28.13	33.15	40.51
July	22.61	23.61	24.61	28.13	34.52	42.25
Aug.	22.61	23.61	24.61	28.13	36.84	44.34
Sept.	22.61	23.61	24.61	28.13	36.95	44.96
Oct.	22.61	23.61	24.80	28.13	36.95	46.63
Nov.	22.61	23.61	25.37	28.13	37.04	46.82
Dec.	22.95	23.61	25.37	29.64	37.06	46.82
Average	22.64	23.58	24.61	27.29	34.34	42.76

	1949	1950	1951	1952	1953	1954
Jan.	$46.79	$45.98	$52.69	$52.72	$55.26	$56.59
Feb.	46.74	46.38	52.69	52.72	55.26	56.59
Mar.	46.74	46.38	52.69	52.72	55.26	56.59
Apr.	46.64	46.38	52.69	52.72	55.26	56.59
May	45.97	46.38	52.69	52.77	55.26	56.59
June	45.91	46.38	52.69	52.77	55.32	56.59
July	45.91	46.38	52.69	53.27	56.73	56.59
Aug.	45.91	46.56	52.69	55.26	56.76	56.59
Sept.	45.90	47.16	52.69	55.26	56.66	56.59
Oct.	45.88	49.29	52.72	55.26	56.59	56.59
Nov.	45.88	49.69	52.72	55.26	56.59	56.59
Dec.	45.88	52.50	52.72	55.26	56.59	56.59
Average	46.18	47.85	52.70	53.82	55.96	56.59

	1955	1956	1957	1958	1959	1960
Jan.	$56.59	$59.09	$62.90	$66.42	$66.41	$66.41
Feb.	56.59	59.09	62.90	66.45	66.41	66.41
Mar.	56.59	59.25	64.56	66.49	66.41	66.41
Apr.	56.59	60.29	64.56	66.49	66.41	66.41
May	56.59	60.29	64.56	66.49	66.41	66.41
June	56.59	60.29	64.56	66.49	66.41	66.41
July	58.46	60.33	65.37	66.49	66.41	66.41
Aug.	59.09	63.02	66.40	66.49	66.41	66.41
Sept.	59.09	63.04	66.42	66.41	66.41	66.41
Oct.	59.09	63.04	66.42	66.41	66.41	66.41
Nov.	59.09	63.04	66.42	66.41	66.41	66.32
Dec.	59.09	63.04	66.42	66.41	66.41	66.32
Average	57.78	61.15	65.15	66.45	66.41	66.39

* Price unchanged at $23.61 from 1942 through 1944.

PRODUCTION OF PIG IRON AND FERROALLOYS, Net Tons

	PIG IRON							FERROALLOYS*			
Year	Basic	Bessemer	Low Phosphorus	Foundry	Malleable	All Other, Including Direct Castings	Total Pig Iron	Ferromang. and Spiegeleisen	Ferrosilicon and Silvery Pig Iron	All Other Ferroalloys	Total Ferroalloys
1960							67,500,000†				2,300,000†
1959	52,059,652	3,055,776	374,479	1,881,228	2,487,851	280,415	60,139,401	679,633	644,727	660,025	1,984,385
1958	49,114,646	3,599,873	320,278	1,606,028	2,304,904	211,978	57,157,707	678,395	448,296	523,896	1,650,587
1957	65,377,744	6,344,106	580,013	2,279,256	3,459,331	334,928	78,375,378	1,040,590	721,139	666,178	2,422,907
1956	61,638,748	6,664,957	504,189	2,398,346	3,467,117	395,132	75,068,489	968,006	809,285	729,678	2,506,969
1955	62,484,889	7,436,354	263,036	2,754,641	3,531,420	387,077	76,857,417	955,174	803,281	647,993	2,406,448
1954	47,023,175	5,652,503	211,893	2,273,032	2,629,662	202,283	57,965,548	749,314	636,694	454,587	1,840,694
1953	59,882,512	8,110,881	297,065	2,500,996	3,784,458	325,517	74,901,429	1,007,248	772,339	569,152	2,348,739
1952	47,511,189	7,445,715	307,478	2,670,210	3,120,168	258,178	61,312,938	820,808	749,059	471,150	2,041,017
1951	54,212,509	9,045,954	314,725	3,050,626	3,363,369	287,095	70,274,278	865,805	919,085	389,375	2,174,265
1950	49,880,440	8,090,608	335,418	2,806,247	3,181,043	293,151	64,586,907	776,881	839,667	196,856	1,813,404
1949	40,905,356	7,059,416	301,520	2,503,912	2,409,436	232,922	53,412,562	675,029	667,322	161,872	1,504,223
1948	46,315,064	7,731,530	384,425	2,769,510	2,590,656	264,031	60,055,216	805,013	842,385	208,945	1,856,343
1947	44,804,743	7,182,207	331,118	2,953,405	2,874,752	182,687	58,328,912	800,725	802,976	184,706	1,788,407
1946	33,727,655	5,932,414	167,013	2,545,936	2,190,285	215,493	44,778,796	540,061	724,141	156,828	1,421,030

* Including ferroalloys produced in electric furnaces. † Iron Age estimate.

Source: American Iron and Steel Institute.

CANADIAN BLAST FURNACE PRODUCTION, Net Tons Including Ferroalloys

Year	Pig Iron	Ferroalloys	Total
1937	1,006,717	91,931	1,098,648
1938	789,710	59,720	849,430
1939	846,418	85,531	931,949
1940	1,309,161	151,661	1,460,822
1941	1,528,054	213,218	1,741,272
1942	1,975,015	213,636	2,188,651
1943	1,758,289	197,094	1,955,383
1944	1,852,628	171,323	2,023,951
1945	1,777,958	186,978	1,964,936
1946	1,403,758	116,995	1,520,753
1947	1,969,847	149,832	2,119,679
1948	2,120,909	250,659	2,371,568
1949	2,154,352	211,603	2,365,955
1950	2,309,732	181,575	2,491,307
1951	2,552,696	250,930	2,803,626
1952	2,682,065	232,036	2,914,101
1953	3,012,269	150,595	3,162,864
1954	2,213,433	109,833	2,323,266
1955	3,213,764	166,682	3,380,440
1956	3,568,196	242,164	3,810,366
1957	3,718,155	230,031	3,948,186
1958	3,060,962	110,754	3,171,716
1959	4,181,794	129,705	4,311,499
1960*	4,371,000	135,000	4,506,000

* Estimated.

Source: Dominion Bureau of Statistics.

Prices: Foundry iron at Buffalo, Chicago, Granite City and Birmingham . . . Basic iron Valley . . . Valley malleable.

CHICAGO FOUNDRY PIG IRON

Per Gross Ton, at Furnace

	1949	1950	1951	1952	1953	1954
Jan.	$46.50	$46.50	$52.50	$52.50	$55.00	$56.50
Feb.	46.50	46.50	52.50	52.50	55.00	56.50
Mar.	46.50	46.50	52.50	52.50	55.00	56.50
Apr.	46.50	46.50	52.50	52.50	56.00	56.50
May	46.50	46.50	52.50	52.50	55.00	56.50
June	46.50	46.50	52.50	52.50	55.00	56.50
July	46.50	46.50	52.50	53.00	56.50	56.50
Aug.	46.50	46.50	52.50	55.00	56.50	56.50
Sept.	46.50	47.50	52.50	55.00	56.50	56.50
Oct.	46.50	49.50	52.50	55.00	56.50	56.50
Nov.	46.50	49.50	52.50	55.00	56.50	56.50
Dec.	46.50	52.50	52.50	55.00	56.50	56.50
Average	46.50	47.58	52.50	53.75	55.75	56.50

	1955	1956	1957	1958	1959	1960
Jan.	$56.50	$59.00	$63.00	$66.50	$66.50	$66.50
Feb.	56.50	59.00	63.00	66.50	66.50	66.50
Mar.	56.50	59.00	65.00	66.50	66.50	66.50
Apr.	56.50	60.50	65.00	66.50	66.50	66.50
May	56.50	60.50	65.00	66.50	66.50	66.50
June	56.50	60.50	65.00	66.50	66.50	66.50
July	58.37	60.50	66.50	66.50	66.50	66.50
Aug.	59.00	61.13	66.50	66.50	66.50	66.50
Sept.	59.00	63.00	66.50	66.50	66.50	66.50
Oct.	59.00	63.00	66.50	66.50	66.50	66.50
Nov.	59.00	63.00	66.50	66.50	66.50	66.50
Dec.	59.00	63.00	66.50	66.50	66.50	66.50
Average	57.69	61.01	65.42	66.50	66.50	66.50

BUFFALO FOUNDRY PIG IRON

Per Gross Ton, at Furnace

	1949	1950	1951	1952	1953	1954
Jan.	$47.28	$46.50	$52.50	$52.50	$55.00	$56.50
Feb.	47.00	46.50	52.50	52.50	55.00	56.50
Mar.	47.00	46.50	52.50	52.50	55.00	56.50
Apr.	46.75	46.50	52.50	52.50	55.00	56.50
May	46.50	46.50	52.50	52.50	55.00	56.50
June	46.50	46.50	52.50	52.50	55.00	56.50
July	46.50	46.50	52.50	53.00	56.50	56.50
Aug.	46.50	46.50	52.50	55.00	56.50	56.50
Sept.	46.50	47.25	52.50	55.00	56.50	56.50
Oct.	46.50	49.50	52.50	55.00	56.50	56.50
Nov.	46.50	49.50	52.50	55.00	56.50	56.50
Dec.	46.50	52.50	52.50	55.00	56.50	56.50
Average	46.67	47.56	52.50	53.75	55.75	56.50

	1955	1956	1957	1958	1959	1960
Jan.	$56.50	$59.00	$63.00	$66.50	$66.50	$66.50
Feb.	56.50	59.00	63.00	66.50	66.50	66.50
Mar.	56.50	59.00	65.00	66.50	66.50	66.50
Apr.	56.50	60.50	65.00	66.50	66.50	66.50
May	56.50	60.50	65.00	66.50	66.50	66.50
June	56.50	60.50	65.00	66.50	66.50	66.50
July	58.37	60.50	66.50	66.50	66.50	66.50
Aug.	59.00	62.00	66.50	66.50	66.50	66.50
Sept.	59.00	63.00	66.50	66.50	66.50	66.50
Oct.	59.00	63.00	66.50	66.50	66.50	66.50
Nov.	59.00	63.00	66.50	66.50	66.50	66.50
Dec.	59.00	63.00	66.50	66.50	66.50	66.50
Average	57.89	61.08	65.42	66.50	66.50	66.50

BASIC PIG IRON, VALLEY

Mahoning, Shenango Valley, Gross Ton

	1948†	1950	1951	1952	1953	1954
Jan.	$38.87	$46.00	$52.00	$52.00	$54.50	$58.00
Feb.	39.00	46.00	52.00	52.00	54.50	58.00
Mar.	39.00	46.00	52.00	52.00	54.50	58.00
Apr.	39.00	46.00	52.00	52.00	54.50	58.00
May	39.00	46.00	52.00	52.00	54.50	58.00
June	39.00	46.00	52.00	52.00	54.50	58.00
July	42.00	46.00	52.00	52.50	56.00	58.00
Aug.	43.00	46.00	52.00	54.50	56.00	58.00
Sept.	43.00	46.75	52.00	54.50	56.00	58.00
Oct.	45.62	49.00	52.00	54.50	56.00	58.00
Nov.	46.00	49.00	52.00	54.50	56.00	58.00
Dec.	46.00	51.62	52.00	54.50	56.00	58.00
Average	41.62	47.03	52.00	53.08	55.25	58.00

	1955	1956	1957	1958	1959	1960
Jan.	$58.00	$58.50	$62.50	$66.00	$66.00	$66.00
Feb.	58.00	58.50	62.50	66.00	66.00	66.00
Mar.	58.00	58.50	64.50	66.00	66.00	66.00
Apr.	58.00	60.00	64.50	66.00	66.00	66.00
May	58.00	60.00	64.50	66.00	66.00	66.00
June	58.00	60.00	64.50	66.00	66.00	66.00
July	57.87	60.00	66.00	66.00	66.00	66.00
Aug.	58.50	62.50	66.00	66.00	66.00	66.00
Sept.	58.50	62.50	66.00	66.00	66.00	66.00
Oct.	58.50	62.50	66.00	66.00	66.00	66.00
Nov.	58.50	62.50	66.00	66.00	66.00	66.00
Dec.	58.50	62.50	66.00	66.00	66.00	66.00
Average	57.19	60.87	64.92	66.00	66.00	66.00

† Price unchanged at $46.00 through 1949.

GRANITE CITY, ILL., PIG IRON

Foundry, Gross Ton, at Furnace

	1949	1950	1951	1952	1953	1954
Jan.	$48.40	$48.40	$54.40	$54.40	$56.90	$58.40
Feb.	48.40	48.40	54.40	54.40	56.90	58.40
Mar.	48.40	48.40	54.40	54.40	56.90	58.40
Apr.	48.40	48.40	54.40	54.40	56.90	58.40
May	48.40	48.40	54.40	54.40	56.90	58.40
June	48.40	48.40	54.40	54.40	56.90	58.40
July	48.40	48.40	54.40	54.90	58.40	58.40
Aug.	48.40	48.40	54.40	56.90	58.40	58.40
Sept.	48.40	48.40	54.40	56.90	58.40	58.40
Oct.	48.40	51.40	54.40	56.90	58.40	58.40
Nov.	48.40	51.40	54.40	56.90	58.40	58.40
Dec.	48.40	53.85	54.40	56.90	58.40	58.40
Average	48.40	49.34	54.40	55.48	57.85	58.40

	1955	1956	1957	1958	1959	1960
Jan.	$58.40	$60.90	$64.90	$68.40	$68.40	$68.40
Feb.	58.40	60.90	64.90	68.40	68.40	68.40
Mar.	58.40	60.90	66.90	68.40	68.40	68.40
Apr.	58.40	62.40	66.90	68.40	68.40	68.40
May	58.40	62.40	66.90	68.40	68.40	68.40
June	58.40	62.40	66.90	68.40	68.40	68.40
July	60.27	62.40	68.40	68.40	68.40	68.40
Aug.	60.90	64.90	68.40	68.40	68.40	68.40
Sept.	60.90	64.90	68.40	68.40	68.40	68.40
Oct.	60.90	64.90	68.40	68.40	68.40	68.40
Nov.	60.90	64.90	68.40	68.40	68.40	68.40
Dec.	60.90	64.90	68.40	68.40	68.40	68.40
Average	59.59	63.07	67.32	68.40	68.40	68.40

BIRMINGHAM PIG IRON PRICES

Foundry Grade, Per Gross Ton

	1949	1950	1951	1952	1953	1954
Jan.	$43.38	$39.38	$48.88	$48.88	$51.38	$52.88
Feb.	43.38	42.38	48.88	48.88	51.38	52.88
Mar.	43.38	42.38	48.88	48.88	51.38	52.88
Apr.	43.38	42.38	48.88	48.88	51.38	52.88
May	39.71	42.38	48.88	48.88	51.38	52.88
June	39.38	42.38	48.88	48.88	51.38	52.88
July	39.38	42.38	48.88	49.38	52.88	52.88
Aug.	39.38	42.38	48.88	51.38	52.88	52.88
Sept.	39.38	42.67	48.88	51.38	52.88	52.88
Oct.	39.38	45.88	48.88	51.38	52.88	52.88
Nov.	39.38	45.88	45.88	51.38	52.88	52.88
Dec.	39.38	48.88	48.88	51.38	52.88	52.88
Average	40.74	43.53	48.88	49.96	52.13	52.88

	1955	1956	1957	1958	1959	1960
Jan.	$52.88	$55.00	$59.00	$62.50	$62.50	$62.50
Feb.	52.88	55.00	59.00	62.50	62.50	62.50
Mar.	52.88	55.00	59.00	62.50	62.50	62.50
Apr.	52.88	55.00	59.00	62.50	62.50	62.50
May	52.88	55.00	59.00	62.50	62.50	62.50
June	52.88	55.00	59.00	62.50	62.50	62.50
July	54.47	57.67	62.50	62.50	62.50	62.50
Aug.	55.00	58.65	62.50	62.50	62.50	62.50
Sept.	55.00	59.00	62.50	62.50	62.50	62.50
Oct.	55.00	59.00	62.50	62.50	62.50	62.50
Nov.	55.00	59.00	62.50	62.50	62.50	62.50
Dec.	55.00	59.00	62.50	62.50	62.50	62.50
Average	53.89	56.86	60.75	62.50	62.50	62.50

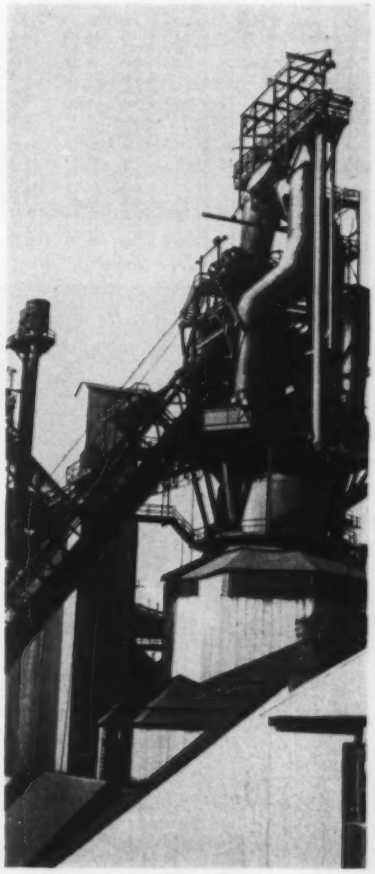
MALLEABLE PIG IRON PRICES

Per Gross Ton, Mahoning, Shenango Valley

	1948†	1950	1951	1952	1953	1954
Jan.	$39.50	$46.50	$52.50	$52.50	$55.00	$56.50
Feb.	39.50	46.50	52.50	52.50	55.00	56.50
Mar.	39.50	46.50	52.50	52.50	55.00	56.50
Apr.	39.50	46.50	52.50	52.50	55.00	56.50
May	39.50	46.50	52.50	52.50	55.00	56.50
June	39.50	46.50	52.50	52.50	55.00	56.50
July	42.50	46.50	52.50	53.00	56.50	56.50
Aug.	43.50	46.50	52.50	55.00	56.50	56.50
Sept.	43.50	47.50	52.50	55.00	56.50	56.50
Oct.	46.12	49.50	52.50	55.00	56.50	56.50
Nov.	48.50	49.50	52.50	55.00	56.50	56.50
Dec.	46.50	52.50	52.50	55.00	56.50	56.50
Average	42.13	47.58	52.50	53.75	55.75	56.50

† Price unchanged at $46.50 through 1949.

	1955	1956	1957	1958	1959	1960
Jan.	$56.50	$59.00	$63.00	$66.50	$66.50	$66.50
Feb.	56.50	59.00	63.00	66.50	66.50	66.50
Mar.	56.50	59.00	65.00	66.50	66.50	66.50
Apr.	56.50	60.50	65.00	66.50	66.50	66.50
May	56.50	60.50	65.00	66.50	66.50	66.50
June	56.50	60.50	65.00	66.50	66.50	66.50
July	56.87	60.50	67.00	66.50	66.50	66.50
Aug.	59.00	63.00	67.00	66.50	66.50	66.50
Sept.	59.00	63.00	67.00	66.50	66.50	66.50
Oct.	59.00	63.00	67.00	66.50	66.50	66.50
Nov.	59.00	63.00	67.00	66.50	66.50	66.50
Dec.	59.00	63.00	67.00	66.50	66.50	66.50
Average	57.57	61.17	65.67	66.50	66.50	66.50



IRON ORE

Prices: Lake Superior ore, foundry and furnace coke . . . Iron ore analyses, ore shipments and prices for various grades.

LAKE SUPERIOR IRON ORE

Avge. Analyses, Combined Ranges, Grades

Year	Analyses, Pct				
	Iron, Natural	Phos.	Silica	Mang.	Moisture
1959	53.81	0.085	8.93	0.61	6.04
1958	53.78	0.086	8.76	0.53	8.49
1957	52.14	0.089	9.39	0.65	9.83
1956	51.34	0.090	9.78	0.67	10.39
1955	50.63	0.099	10.11	0.72	10.81
1954	50.86	0.095	10.22	0.70	10.47
1953	50.37	0.090	10.25	0.75	10.90
1952	50.49	0.111	10.05	0.77	10.78
1951	50.25	0.090	9.87	0.77	11.22
1950	50.38	0.092	9.85	0.77	11.11
1949	50.39	0.096	9.72	0.78	11.12
1948	50.49	0.093	9.30	0.76	11.35
1947	50.91	0.093	9.09	0.75	11.28
1946	51.32	0.087	8.83	0.74	11.22
1945	51.69	0.089	8.52	0.72	10.96
1944	51.72	0.088	8.42	0.74	11.02
1943	51.58	0.091	8.32	0.82	11.06

Source: American Iron Ore Assn.

LAKE SHIPMENTS OF IRON ORE

Lake Superior Shipments, Gross Tons

1942	92,070,000
1943	85,116,000
1944	81,039,000
1945	75,207,000
1946	58,975,000
1947	77,210,278
1948	82,655,737
1949	69,556,269
1950	78,205,592
1951	89,092,012
1952	74,910,798
1953	95,844,449
1954	60,793,697
1955	87,459,853
1956	73,389,972
1957	84,615,871
1958	52,243,820
1959	46,943,840
1960*	70,000,000

* Estimate. Source: American Iron Ore Assn.

U. S. IRON ORE CONSUMPTION

In Long Tons

1950	106,610,273
1951	114,837,112
1952	100,640,636
1953	122,124,661
1954	96,800,000
1955	114,989,933
1956	119,669,641
1957	124,941,763
1958	81,899,541
1959	94,398,015
1960*	108,000,000

* Estimate by The Iron Age.
Source: U. S. Bureau of Mines.

LAKE SUPERIOR IRON ORE PRICES

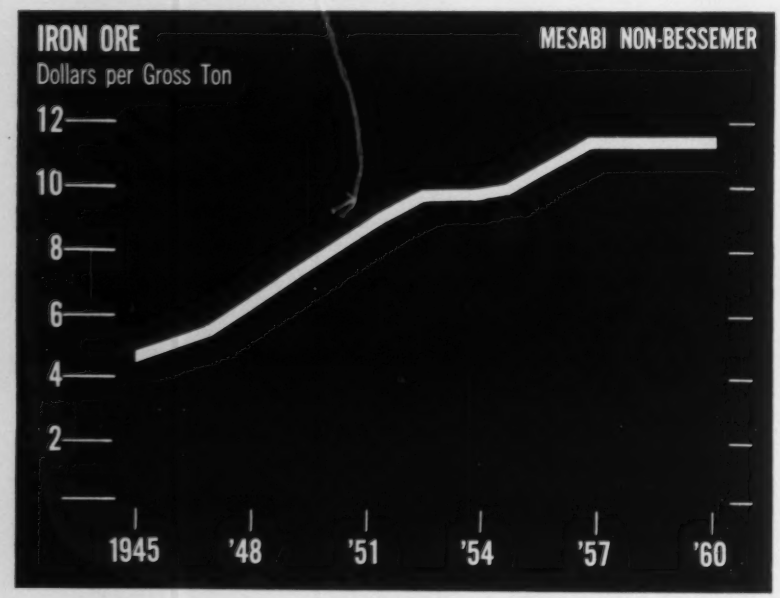
Per Gross Ton at Lower Lake Ports

BESSEMER ORES

	Guarantee		Price	
	Iron Natural	Phosphorus Dry	Old Range	Mesabi
1947 to Apr. 1, 1948	51.50	0.045	59.5	5.70
1948–Apr. 1 on	51.50	0.045	6.60	6.35
1948	51.50	0.045	7.60	7.35
1950–Feb. 1 to Dec. 1	51.50	0.045	8.10	7.85
1950–Dec. 1 on	51.50	0.045	8.70	8.45
1951	51.50	0.045	8.70	8.45
1952 to July 25	51.50	0.045	8.70	8.45
1952–July 26 on	51.50	0.045	9.45	9.20
1953 to June 30	51.50	0.045	10.10	9.85
1953–July 1 on	51.50	0.045	10.30	10.05
1954	51.50	0.045	10.30	10.05
1955	51.50	0.045	10.40	10.25
1956	51.50	0.045	11.25	11.00
1957	51.50	0.045	11.85	11.60
1958	51.50	0.045	11.85	11.60
1959	51.50	0.045	11.85	11.60
1960	51.50	0.045	11.85	11.60

NON-BESSEMER

	Guarantee	Price		
	Iron Natural	Old Range	Mesabi	High Phosphorus
1947 to Apr. 1, 1948	51.50	5.80	5.55	5.55
1948–Apr. 1 on	51.50	6.45	6.20	6.20
1949	51.50	7.45	7.20	7.20
1950–Feb. 1 to Dec. 1	51.50	7.95	7.70	7.70
1950–Dec. 1 on	51.50	8.55	8.30	8.30
1951	51.50	8.55	8.30	8.30
1952 to July 25	51.50	8.55	8.30	8.30
1952–July 26 on	51.50	9.30	9.05	9.05
1953 to June 30	51.50	9.95	9.70	9.70
1953–July 1 on	51.50	10.15	9.90	9.90
1954	51.50	10.15	9.90	9.90
1955	51.50	10.25	10.10	10.00
1956	51.50	11.10	10.85	10.85
1957	51.50	11.70	11.45	11.45
1958	51.50	11.70	11.45	11.45
1959	51.50	11.70	11.45	11.45
1960	51.50	11.70	11.45	11.45



CONNELLSVILLE FOUNDRY COKE

Net Ton at Oven, Monthly Review

	1949	1950	1951	1952	1953	1954
Jan.	$18.94	$15.75	$17.25	$17.75	$17.75	$16.75
Feb.	16.75	15.75	17.25	17.75	17.75	16.75
Mar.	16.50	16.25	17.50	17.75	17.63	16.75
Apr.	16.50	15.25	17.75	17.75	17.25	16.75
May	16.38	16.25	17.75	17.75	17.25	16.75
June	16.25	16.25	17.75	17.75	17.25	16.75
July	16.13	16.25	17.75	17.75	17.25	16.75
Aug.	15.75	16.25	17.75	17.75	17.25	16.75
Sept.	15.75	16.25	17.75	17.75	16.95	16.75
Oct.	15.75	16.75	17.75	17.75	16.75	16.75
Nov.	15.75	16.75	17.75	17.75	16.75	16.75
Dec.	15.75	17.12	17.75	17.75	16.75	16.75
Average	16.18	16.32	17.65	17.75	17.22	16.75

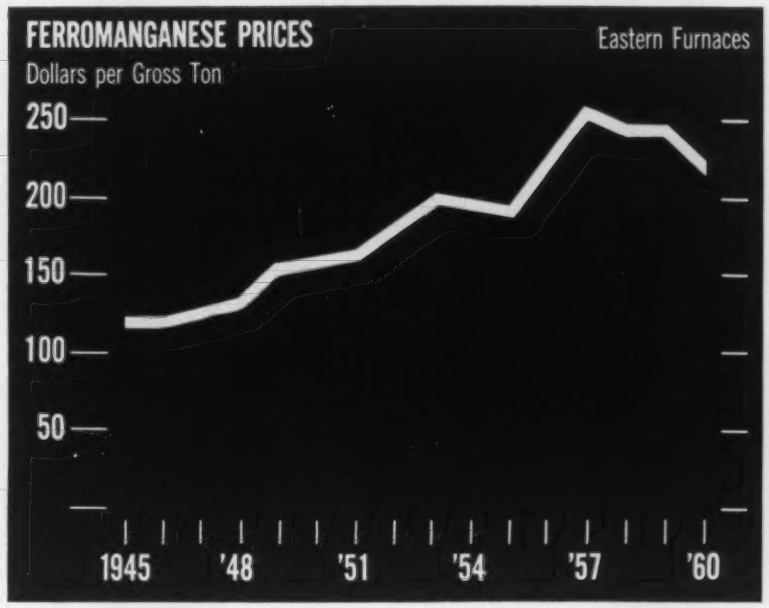
	1955	1956	1957	1958	1959	1960
Jan.	$16.75	$16.25	$18.25	$18.25	$18.25	$18.50
Feb.	16.75	16.25	18.25	18.25	18.25	18.50
Mar.	16.75	16.25	18.25	18.25	18.25	18.50
Apr.	16.75	17.50	18.25	18.25	18.25	18.50
May	16.35	17.50	18.25	18.25	18.25	18.50
June	16.25	17.50	18.25	18.25	18.25	18.50
July	16.25	17.50	18.25	18.25	18.25	18.50
Aug.	16.25	17.50	18.25	18.25	18.25	18.50
Sept.	16.25	17.50	18.25	18.25	18.25	18.50
Oct.	16.25	17.50	18.25	18.25	18.25	18.50
Nov.	16.25	18.25	18.25	18.25	18.25	18.50
Dec.	16.25	18.25	18.25	18.25	18.25	18.50
Average	16.42	17.31	18.25	18.25	18.25	18.50

CONNELLSVILLE FURNACE COKE

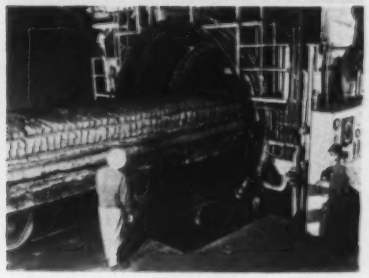
Net Ton at Oven, Monthly Review

	1949	1950	1951	1952	1953	1954
Jan.	$16.56	$14.00	$14.25	$14.75	$14.75	$14.38
Feb.	15.25	14.00	14.25	14.75	14.75	14.38
Mar.	14.50	14.13	14.50	14.75	14.75	14.38
Apr.	14.50	14.25	14.75	14.75	14.75	14.38
May	14.38	14.25	14.75	14.75	14.75	14.38
June	14.25	14.25	14.75	14.75	14.75	14.38
July	14.25	14.25	14.75	14.75	14.75	14.38
Aug.	14.25	14.25	14.75	14.75	14.75	14.38
Sept.	14.25	14.25	14.75	14.75	14.53	14.38
Oct.	14.25	14.25	14.75	14.75	14.38	14.38
Nov.	14.20	14.25	14.75	14.75	14.38	14.36
Dec.	14.00	14.25	14.75	14.75	14.38	14.38
Average	14.58	14.20	14.55	14.75	14.64	14.38

	1955	1956	1957	1338	1959	1960
Jan.	$14.38	$14.25	$15.38	$15.38	$14.50	$15.13
Feb.	14.38	14.25	15.38	15.38	15.00	15.13
Mar.	14.38	14.25	15.38	15.38	15.00	15.13
Apr.	13.34	14.50	15.38	15.38	15.00	15.13
May	13.15	14.50	15.38	15.38	15.00	15.13
June	13.25	14.50	15.38	15.38	15.00	15.13
July	13.25	14.50	15.38	15.38	15.00	15.13
Aug.	13.25	14.62	15.38	14.50	15.00	15.13
Sept.	13.25	14.62	15.38	14.50	15.00	15.13
Oct.	13.25	14.62	15.38	15.50	15.00	15.13
Nov.	14.25	15.26	15.38	14.50	15.00	15.13
Dec.	14.25	15.50	15.38	14.50	15.13	15.13
Average	13.69	14.62	15.38	15.01	14.96	15.13



Ferroalloys, Furnace Bricks



FERROMANGANESE

Eastern Producers, Carloads, Cents Per Lb

	1947	1948†	1949	1950	1951	1952	1953‡	1954‡	1955	1956	1957	1958	1959	1960
Jan.	6.03	6.47	7.21	7.74	8.27	8.31	10.10	10.00	9.50	10.25	12.75	12.25	12.25	12.25
Feb.	6.03	6.47	7.21	7.74	8.31	8.31	10.10	10.00	9.50	10.25	12.75	12.25	12.25	11.00
Mar.	6.03	6.47	7.56	7.74	8.31	8.31	10.10	10.00	9.50	10.25	12.75	12.25	21.25	11.00
Apr.	6.03	6.47	7.74	7.74	8.31	8.31	10.00	10.00	9.50	10.65	12.75	12.25	12.25	11.00
May	6.03	6.47	7.74	7.74	8.31	8.31	10.12	10.00	9.50	10.75	12.85	12.25	12.25	11.00
June	6.03	6.47	7.74	7.74	8.31	8.31	10.00	10.00	9.50	10.75	12.75	12.25	12.25	11.00
July	6.03	6.47	7.74	7.74	8.31	8.31	10.00	10.00	9.50	10.75	12.75	12.25	12.25	11.00
Aug.	6.03	6.47	7.74	7.74	8.31	9.65	10.00	10.00	9.50	10.75	12.75	12.25	12.25	11.00
Sept.	6.03	6.47	7.74	7.74	8.31	10.00	10.00	9.50	9.50	11.25	12.50	12.25	12.25	11.00
Oct.	6.47	7.23	7.74	7.74	8.31	10.00	10.00	9.50	9.50	11.75	12.25	12.25	12.25	11.00
Nov.	6.47	7.23	7.74	7.97	8.31	10.00	10.00	9.50	9.50	11.75	12.25	12.25	12.25	11.00
Dec.	6.47	7.23	7.74	8.09	8.31	10.00	10.00	9.50	10.25	12.00	12.25	12.25	12.25	11.00
Average	6.14	6.96	7.64	7.79	8.31	9.02	10.04	9.83	10.91	10.94	12.60	12.25	12.25	11.10

† Seaboard price prior to Oct. 7, 1948. ‡ Starting June, 1953, prices reflect new standard of 74 to 76 pct Mn. Prices prior to that converted from older gross ton pricing method and were based on standard of 78-82 pct Mn.

SPIEGELEISEN, 19 TO 21 PCT.

Palmerton, Pa., Carloads, Gross Ton 10 lb pig

	1955	1956	1957	1958	1959	1960
Jan.	$86.00	$91.50	$102.50	$102.50	$102.50	$100.00
Feb.	86.00	91.50	102.50	102.50	102.50	100.00
Mar.	86.00	91.50	102.50	102.50	102.50	100.00
Apr.	86.00	94.00	102.50	102.50	102.50	100.00
May	86.00	94.00	102.50	102.50	102.50	100.00
June	86.00	94.00	102.50	102.50	102.50	100.00
July	86.00	94.00	102.50	102.50	102.50	100.00
Aug.	86.00	96.00	102.50	102.50	102.50	100.00
Sept.	86.00	96.00	102.50	102.50	102.50	100.00
Oct.	87.50	99.50	102.50	102.50	102.50	100.00
Nov.	88.00	99.50	102.50	102.50	102.50	100.00
Dec.	88.00	99.50	102.50	102.50	102.50	100.00
Average	86.45	95.08	102.50	102.50	102.50	100.00

50 PCT FERROSILICON

Cents per lb contained Si, Carloads, Delivered*

	1955	1956	1957	1958	1959	1960
Jan.	12.00	12.75	13.90	14.20	14.60	14.60
Feb.	12.00	12.75	13.90	14.20	14.60	14.60
Mar.	12.00	12.75	13.00	14.20	14.60	14.60
Apr.	11.00	12.75	13.00	14.20	14.60	14.60
May	11.00	12.75	13.00	14.20	14.60	14.60
June	11.00	12.75	13.00	14.20	14.60	14.60
July	11.00	12.75	13.00	14.20	14.60	14.60
Aug.	11.00	12.75	13.00	14.20	14.60	14.60
Sept.	11.00	13.15	13.00	14.20	14.60	14.60
Oct.	11.75	13.50	13.00	14.60	14.60	14.60
Nov.	11.75	13.50	13.00	14.60	14.60	14.60
Dec.	11.75	13.90	13.00	14.60	14.60	14.60
Average	11.43	12.00	13.15	14.30	14.60	14.60

* F.o.b. shipping point after Oct. 1, 1955.

BONDED MAGNESITE BRICK

F.o.b. Baltimore, Carloads per 1000*

	1954	1955	1956	1957	1958	1959	1960*
Jan.	$97.50	$97.50	$102.00	$109.00	$116.00	$119.00	$119.00
Feb.	97.50	97.50	102.00	109.00	116.00	119.00	119.00
Mar.	97.50	97.50	102.00	109.00	116.00	119.00	119.00
Apr.	97.50	97.50	102.00	116.00	116.00	119.00	119.00
May	97.50	97.50	102.00	116.00	116.00	119.00	119.00
June	97.50	97.50	102.00	116.00	116.00	119.00	119.00
July	97.50	97.50	102.00	116.00	116.00	119.00	119.00
Aug.	97.50	97.50	109.00	116.00	116.00	119.00	119.00
Sept.	97.50	97.50	109.00	116.00	116.00	119.00	119.00
Oct.	97.50	97.50	109.00	116.00	119.00	119.00	655.00
Nov.	97.50	102.00	109.00	116.00	119.00	119.00	655.00
Dec.	97.50	102.00	109.00	116.00	119.00	119.00	655.00
Avg.	97.50	98.59	104.92	114.25	116.75	119.00	655.00

* Dollars per ton before Oct., 1960.

BURNED MAGNESITE BRICK

F.o.b. Baltimore, Carloads per 1000*

	1954	1955	1956	1957	1958	1959	1960
Jan.	$109.00	$109.00	$114.00	$121.00	$131.00	$140.00	$140.00
Feb.	109.00	109.00	114.00	121.00	131.00	140.00	140.00
Mar.	109.00	109.00	114.00	121.00	131.00	140.00	140.00
Apr.	109.00	109.00	114.00	131.00	131.00	140.00	140.00
May	109.00	109.00	114.00	131.00	131.00	140.00	140.00
June	109.00	109.00	114.00	131.00	131.00	140.00	140.00
July	109.00	109.00	114.00	131.00	131.00	140.00	140.00
Aug.	109.00	109.00	121.00	131.00	131.00	140.00	140.00
Sept.	109.00	109.00	121.00	131.00	131.00	140.00	140.00
Oct.	109.00	109.00	121.00	131.00	140.00	140.00	715.00
Nov.	109.00	114.00	121.00	131.00	140.00	140.00	715.00
Dec.	109.00	114.00	121.00	131.00	140.00	140.00	715.00
Avg.	109.00	109.83	116.92	128.50	133.25	140.00	715.00

* Dollars per net ton before October, 1960.

CHEM. BONDED CHROME BRICK

F.o.b. Baltimore, Carloads per 1000*

	1954	1955	1956	1957	1958	1959	1960*
Jan.	$86.00	$86.00	$91.00	$98.00	$105.00	$109.00	$109.00
Feb.	86.00	86.00	91.00	98.00	105.00	109.00	109.00
Mar.	86.00	86.00	91.00	98.00	105.00	109.00	109.00
Apr.	86.00	86.00	91.00	105.00	105.00	109.00	109.00
May	86.00	86.00	91.00	105.00	105.00	109.00	109.00
June	86.00	86.00	91.00	105.00	105.00	109.00	109.00
July	86.00	86.00	91.00	105.00	105.00	109.00	109.00
Aug.	86.00	86.00	98.00	105.00	105.00	109.00	109.00
Sept.	86.00	86.00	98.00	105.00	105.00	109.00	109.00
Oct.	86.00	86.00	98.00	105.00	109.00	109.00	109.00
Nov.	86.00	91.00	98.00	105.00	109.00	109.00	620.00
Dec.	86.00	91.00	98.00	105.00	109.00	109.00	620.00
Avg.	86.00	86.83	93.92	103.25	106.00	109.00	620.00

* Dollars per net ton before Oct., 1960.

SILICA BRICK STANDARD GRADE

Mt. Union, Pa., Ensley, Ala., Carloads per 1000 Brick, F.o.b. plant

	1955	1956	1957	1958	1959	1960
Jan.	$120.00	$128.00	$140.00	$150.00	$158.00	$158.00
Feb.	120.00	128.00	140.00	150.00	158.00	158.00
Mar.	120.00	128.00	140.00	150.00	158.00	158.00
Apr.	120.00	128.00	150.00	150.00	158.00	158.00
May	120.00	128.00	150.00	150.00	158.00	158.00
June	120.00	128.00	150.00	150.00	158.00	158.00
July	124.00	128.00	150.00	150.00	158.00	158.00
Aug.	128.00	140.00	150.00	150.00	158.00	158.00
Sept.	128.00	140.00	150.00	150.00	158.00	158.00
Oct.	128.00	140.00	150.00	158.00	158.00	158.00
Nov.	128.00	140.00	150.00	158.00	158.00	158.00
Dec.	128.00	140.00	150.00	158.00	158.00	158.00
Average	123.66	133.00	147.50	152.00	158.00	158.00

HIGH DUTY FIRE CLAY BRICK

Pa.,* Ky., Mo., Ill., Md., Ohio, F.o.b. Plant**

	1954	1955	1956	1957	1958	1959	1960
Jan.	$109.00	$114.00	$122.00	$128.00	$135.00	$140.00	$140.00
Feb.	109.00	114.00	122.00	128.00	135.00	140.00	140.00
Mar.	109.00	114.00	122.00	128.09	135.00	140.00	140.00
Apr.	109.00	114.00	122.00	135.00	135.00	140.00	140.00
May	109.00	114.00	122.00	135.00	135.00	140.00	140.00
June	109.00	114.00	122.00	135.00	135.00	140.00	140.00
July	109.00	118.00	122.00	135.00	135.00	140.00	140.00
Aug.	109.00	122.00	128.00	135.00	135.00	140.00	140.00
Sept.	113.00	122.00	128.00	135.00	135.00	140.00	140.00
Oct.	114.00	122.00	128.00	135.00	140.00	140.00	140.00
Nov.	114.00	122.00	128.00	135.00	140.00	140.00	140.00
Dec.	114.00	122.00	128.00	135.00	140.00	140.00	140.00
Avg.	110.58	117.66	124.50	133.25	136.25	140.00	140.00

* Add $5.00 for Salina, Pa.
** Carloads per 1000 brick.

Steel Scrap

CHICAGO

Prices of No. 1 Scrap, Per Gross Ton

	1955	1956	1957	1958	1959	1960
Jan.	$34.50	$50.10	$57.90	$31.75	$43.00	$40.25
Feb.	34.00	46.63	49.00	37.00	44.25	38.06
Mar.	34.90	48.00	44.00	35.25	40.10	30.90
Apr.	35.50	54.00	39.50	28.70	33.50	31.25
May	32.90	50.50	42.00	31.75	32.00	30.10
June	33.25	44.00	51.10	35.10	34.50	29.25
July	38.00	44.50	51.75	39.25	35.50	29.88
Aug.	40.90	55.50	52.63	44.00	36.75	31.50
Sept.	41.75	59.00	46.50	44.90	39.70	29.75
Oct.	43.25	56.90	36.50	42.50	43.25	26.50
Nov.	43.70	62.50	31.75	42.45	44.00	25.50
Dec.	49.13	65.00	30.50	33.70	40.30	25.75*
Average	38.48	53.05	44.43	37.22	38.90	30.72*

*Estimate.

No. 2 Bundles

	1955	1956	1957	1958	1959	1960
Jan.	$24.50	$40.13	$44.40	$22.25	$31.25	$27.25
Feb.	24.50	37.75	39.75	28.25	31.50	24.00
Mar.	24.50	37.30	37.50	26.00	28.90	18.80
Apr.	24.50	41.50	34.00	21.70	21.75	20.38
May	23.13	36.80	34.80	24.25	21.75	20.10
June	23.60	32.75	42.13	27.50	24.50	18.75
July	27.13	34.00	41.50	29.25	24.50	19.25
Aug.	31.50	43.10	40.80	32.00	25.75	21.10
Sept.	31.90	44.75	33.88	31.50	27.10	19.25
Oct.	33.38	42.25	23.70	29.50	30.00	16.50
Nov.	34.19	46.00	20.25	31.50	30.50	16.50
Dec.	39.95	50.25	19.50	31.50	26.50	17.00*
Average	28.56	40.55	34.35	27.93	27.00	19.91*

*Estimate.

PHILADELPHIA

Prices of No. 1 Scrap, Per Gross Ton

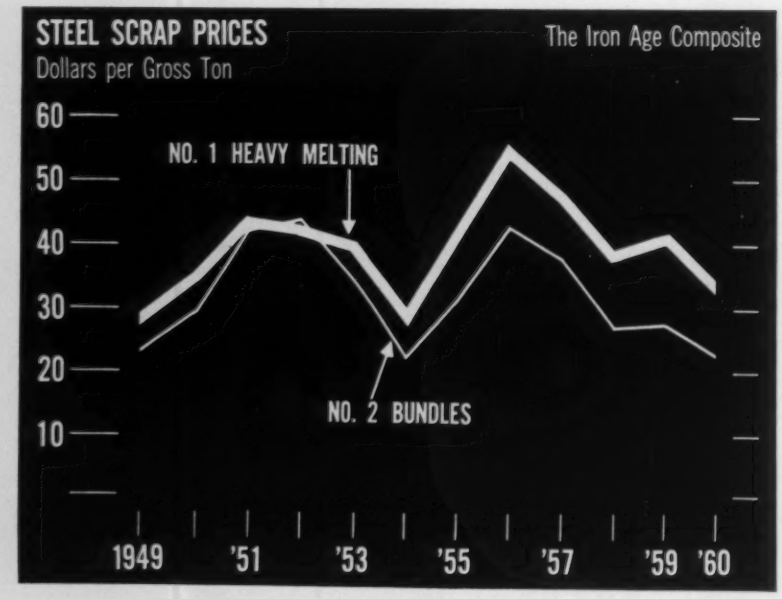
	1955	1956	1957	1958	1959	1960
Jan.	$32.87	$54.10	$58.50	$37.13	$35.75	$41.50
Feb.	37.00	50.63	57.00	38.00	39.50	39.75
Mar.	38.40	50.40	52.75	38.00	37.30	35.20
Apr.	37.00	54.63	46.88	36.40	33.75	34.50
May	35.60	53.30	50.25	34.00	34.00	34.50
June	38.50	46.75	56.10	33.60	36.70	33.50
July	40.50	48.25	54.00	34.75	39.00	33.50
Aug.	45.50	55.80	51.25	37.75	39.50	34.10
Sept.	45.70	58.38	46.38	39.90	41.10	34.50
Oct.	46.50	56.80	37.70	40.50	44.75	33.50
Nov.	47.10	59.25	33.75	37.62	46.00	33.00
Dec.	51.00	62.50	34.00	43.50	42.70	33.50*
Average	41.31	54.23	48.30	37.60	39.17	35.08*

*Estimate.

No. 2 Bundles

	1955	1956	1957	1958	1959	1960
Jan.	$26.00	$45.50	$49.40	$26.50	$24.38	$25.50
Feb.	28.50	41.63	47.63	27.50	26.00	24.00
Mar.	30.80	40.10	42.25	27.50	24.80	22.30
Apr.	28.50	44.13	36.00	25.30	21.75	21.50
May	27.13	42.30	39.50	23.50	21.50	21.10
June	27.50	36.00	48.13	23.50	23.50	19.50
July	31.75	37.25	46.38	23.50	26.75	19.50
Aug.	36.50	44.50	43.00	24.00	27.25	20.50
Sept.	38.50	47.25	37.50	24.50	27.20	22.25
Oct.	37.50	45.63	28.50	25.25	29.00	20.25
Nov.	37.25	49.10	24.75	23.25	30.00	18.50
Dec.	42.50	52.13	24.60	23.10	26.90	18.50*
Average	32.70	43.79	38.97	24.78	25.75	21.11*

*Estimate.



Average of Iron Age Scrap Prices Pittsburgh, Chicago, Philadelphia Per Gross Ton

No. 1 Heavy Melting

	1955	1956	1957	1958	1959	1960
Jan.	$34.82	$52.33	$59.37	$33.88	$41.08	$41.83
Feb.	36.16	48.75	53.17	37.17	43.66	39.77
Mar.	37.27	49.43	48.50	36.58	40.43	33.67
Apr.	36.50	54.88	42.80	32.73	35.08	33.42
May	34.48	51.17	46.17	33.50	34.41	32.90
June	34.96	45.08	54.23	35.40	37.90	31.25
July	39.50	46.42	54.00	38.25	39.33	31.29
Aug.	43.96	56.10	52.96	42.08	39.91	32.23
Sept.	44.25	58.58	47.29	43.30	41.70	31.92
Oct.	44.75	56.80	37.37	42.67	44.83	29.67
Nov.	45.47	61.67	32.83	41.70	45.67	28.33
Dec.	50.42	64.59	32.33	39.90	41.90	28.66*
Average	40.19	53.82	46.75	38.09	40.49	32.91*

*Estimate.

No. 2 Bundles

	1955	1956	1957	1958	1959	1960
Jan.	$26.33	$43.29	$47.43	$25.83	$29.21	$28.17
Feb.	27.46	40.13	44.04	28.75	30.33	25.75
Mar.	28.83	40.03	39.58	27.50	28.27	22.20
Apr.	27.17	43.88	34.75	24.03	23.33	22.88
May	25.67	39.73	38.07	24.67	23.33	22.70
June	26.07	35.08	45.84	26.17	25.50	20.92
July	30.46	36.42	44.88	27.58	26.92	21.09
Aug.	35.17	44.40	43.17	29.67	27.50	22.03
Sept.	35.77	46.50	37.13	29.10	28.20	22.25
Oct.	36.13	44.88	27.80	28.75	30.50	20.09
Nov.	35.73	48.33	24.66	29.33	31.33	18.50
Dec.	41.32	51.63	24.20	28.70	28.23	18.75*
Average	31.34	42.86	37.63	27.53	27.72	22.11*

*Estimate.

PITTSBURGH

Prices of No. 1 Scrap, Per Gross Ton

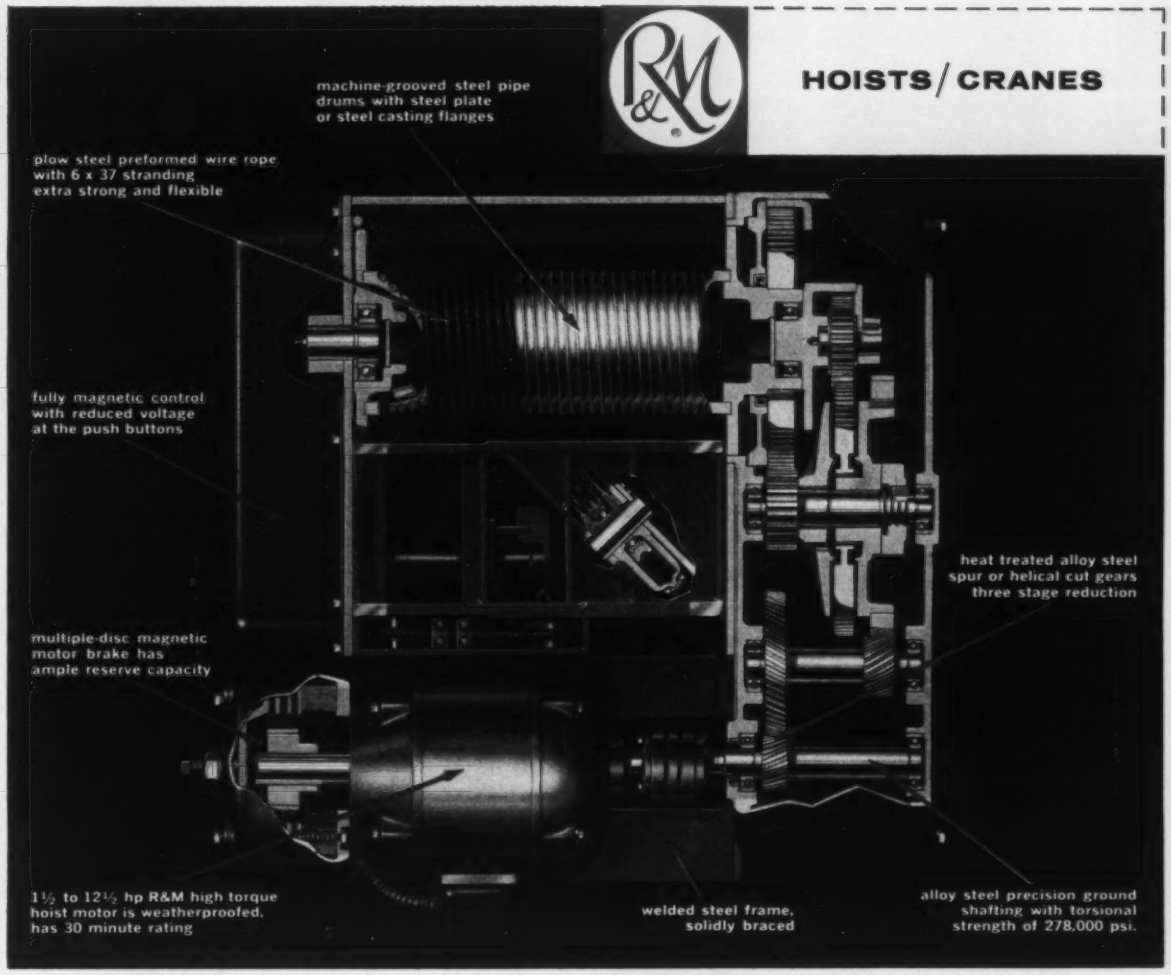
	1955	1956	1957	1958	1959	1960
Jan.	$36.50	$52.50	$60.70	$32.75	$44.50	$43.75
Feb.	37.50	49.00	53.50	36.50	47.25	41.50
Mar.	38.50	49.90	48.75	36.50	43.90	34.90
Apr.	37.00	56.00	42.00	33.10	38.00	34.50
May	34.70	49.70	46.25	34.75	37.25	34.10
June	35.25	44.50	55.50	37.50	42.50	31.00
July	40.00	46.50	56.25	40.75	43.50	30.50
Aug.	45.00	57.00	55.00	44.50	43.50	31.10
Sept.	44.50	58.38	49.00	44.50	44.30	31.50
Oct.	44.50	56.70	37.90	45.00	46.50	29.00
Nov.	45.80	63.25	33.00	44.75	47.00	26.00
Dec.	51.13	66.25	32.50	42.50	42.70	26.75*
Average	40.87	54.14	47.53	39.42	43.40	32.92*

No. 2 Bundles

	1955	1956	1957	1958	1959	1960
Jan.	$28.50	$44.25	$48.50	$28.75	$32.00	$31.75
Feb.	29.38	41.00	44.75	30.50	33.50	29.25
Mar.	31.20	42.70	39.00	29.00	31.10	25.50
Apr.	28.50	46.00	34.25	25.10	26.50	26.75
May	26.75	40.10	39.90	26.25	26.75	26.90
June	27.10	36.50	47.25	27.50	28.50	24.50
July	32.50	38.00	46.75	30.00	29.50	24.50
Aug.	37.50	45.60	45.70	33.00	29.50	24.50
Sept.	36.90	47.50	40.00	31.30	30.30	25.25
Oct.	37.50	46.75	31.30	31.50	32.50	23.50
Nov.	35.75	49.90	29.00	33.25	33.50	20.50
Dec.	41.50	52.50	28.50	31.50	31.30	20.75*
Average	32.76	44.23	39.57	29.89	30.41	25.30*

*Estimate.

SCRAP FORECAST: During '61, dealers and brokers will probably ship 32 million tons of scrap to domestic mills and foundries and export markets. That's the prediction of William S. Story, asst. exec. vice president, Institute of Scrap Iron & Steel. The total could reach 34 million tons, he adds. This compares with about 30 million tons shipped in '60.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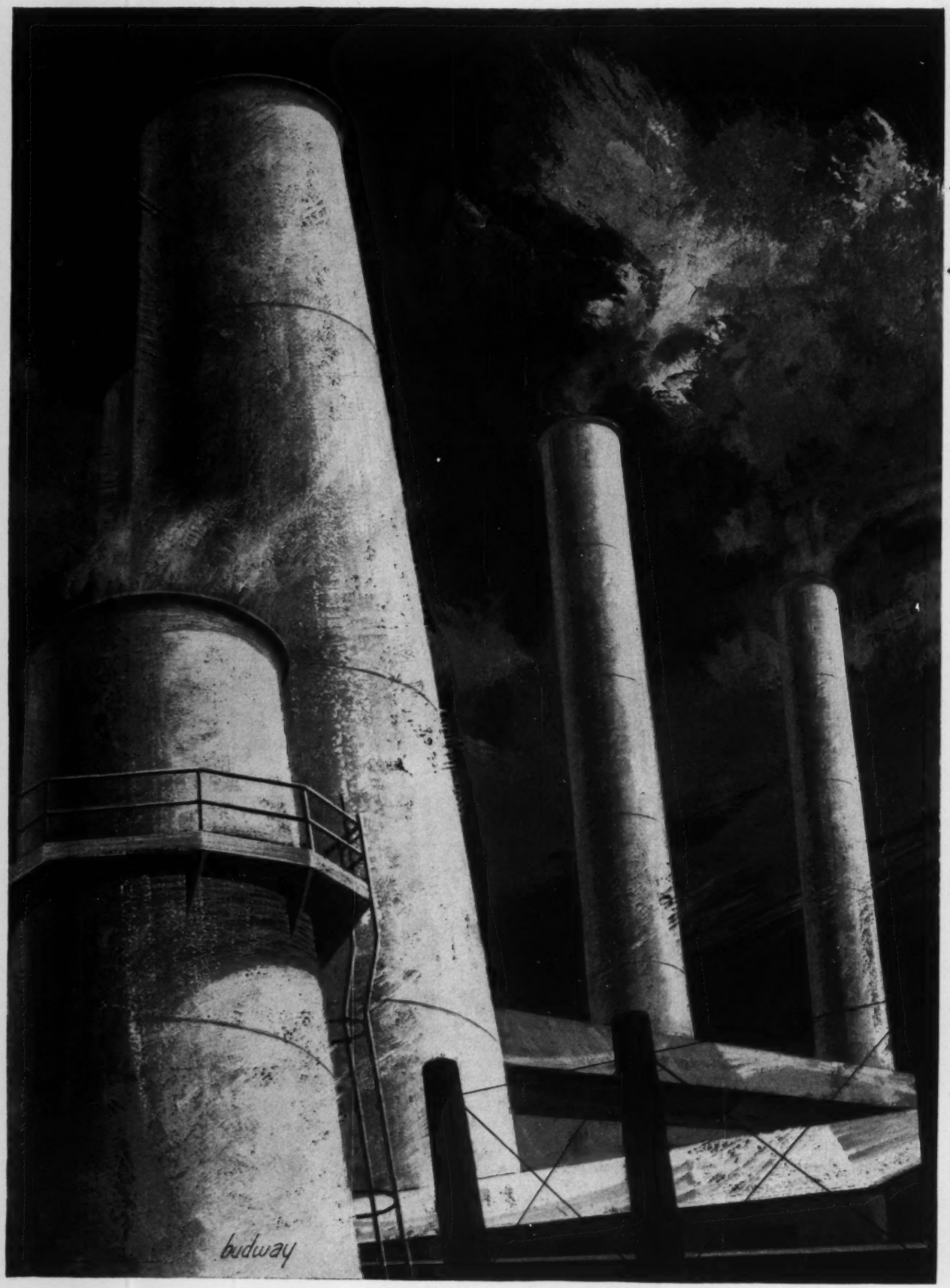
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Koppers will be glad to analyze your operation, too. Write to Koppers Company, Inc., Engineering and Construction Division, Pittsburgh 19, Pennsylvania.

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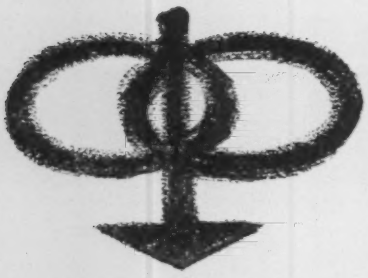

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1961 Meetings And Conventions

Major meetings and conventions of metalworking's trade associations and technical societies in 1961 are listed below. Telephone numbers of association headquarters are included.

JANUARY

AMERICAN RAILWAY CAR INSTITUTE—Annual meeting, one day during the third week of January. Institute headquarters are at 200 E. 42nd St., New York. Tel: YU 6-5940.

ASSN. OF ROLLER & SILENT CHAIN MFRS.—Meeting Jan. 26-27, The Drake Hotel, Chicago. Association headquarters are at 3343 Central Ave., Indianapolis, Ind. Tel: WA 5-5635.

COMPRESSED GAS ASSN., INC.—Annual meeting, Jan. 23-24, Waldorf-Astoria, New York. Association headquarters are at Eleven West Forty-Second St., New York. Tel: LA 4-4796.

CUTTING TOOL MANUFACTURERS ASSN.—Annual business meeting, Jan. 26, Harmonie Club, Detroit. Association headquarters are at 1216 Penobscott Bldg., Detroit. Tel: WO 1-0080.

HOIST MANUFACTURERS ASSN., INC.—Annual meeting, Jan. 10, Statler-Hilton Hotel, Cleveland. Association headquarters are at One Thomas Circle, Washington. Tel: ME 8-3728.

INDUSTRIAL HEATING EQUIPMENT ASSN., INC.—Annual winter meeting, Jan. 23-24, Dearborn, Mich. Association headquarters are at 2000 K St., N.W., Washington. Tel: FE 8-6655.

INSTITUTE OF SCRAP IRON & STEEL, INC.—National convention, Jan. 8-11, Hotel Fontainebleau, Miami Beach, Fla. Institute headquarters are at 1729 H. St., N.W., Washington. Tel: ME 8-6171.

INSTRUMENT SOCIETY OF AMERICA—29th Annual meeting, Jan. 23-25, Hotel Astor, New York. Society headquarters are at 313-6th Ave., Pittsburgh. Tel: AT 1-3171.

MINING AND METALLURGICAL SOCIETY OF AMERICA—Annual dinner, Jan. 25, Mining Club, New York. Society headquarters are at Eleven Broadway, New York. Tel: WH 4-5229.

NATIONAL TOOL & DIE MANUFACTURERS ASSN.—Winter Board meeting, Jan. 24-28, Biltmore Hotel, Palm Beach, Fla. Association headquarters are at 907 Public Square Bldg., Cleveland. Tel: MA 1-5998.

SOCIETY OF AUTOMOTIVE ENGINEERS, INC.—Annual meeting, Jan. 9-13, Cobo Hall and Convention Arena, Detroit. Society headquarters are at 485 Lexington Ave., New York. Tel: OX 7-3340.

SOCIETY OF PLASTIC ENGINEERS, INC.—Annual technical meeting, Jan. 24-27, Shoreham & Park Sheraton, Washington. Society headquarters are at 65 Prospect St., Stamford, Conn. Tel: FI 8-7528.

STEEL PLATE FABRICATORS ASSN.—Annual meeting, Jan. 18-19-20, Lago Mar Hotel, Fort Lauderdale, Fla. Association headquarters are at 105 W. Madison St., Chicago. Tel: DE 2-1682.

FEBRUARY

AMERICAN FOUNDRYMEN'S SOCIETY—Wisconsin regional foundry conference, Feb. 9-10, Hotel Schroeder, Milwaukee. Society headquarters are at Golf and Wolf Rds., Des Plaines. Tel: VA 4-0181.

ASSN. OF IRON AND STEEL ENGINEERS—Western meeting, Feb. 27-28-Mar. 1, Hotel Statler, Los Angeles. Association headquarters are at 1010 Empire Bldg., Pittsburgh. Tel: AT 1-6323.

THE METALLURGICAL SOCIETY OF AIME—Annual meeting, Feb. 26-Mar. 2, Ambassador and Chase-Park-Plaza Hotels, St. Louis. Society headquarters are at 29 West 39th St., New York. Tel: PE 6-9220.

NATIONAL ASSOCIATION OF MANUFACTURERS—Meeting Feb. 15-17, The Riviera Hotel, Palm Springs, Calif. Association headquarters are at Two E. 48th St., New York. Tel: MU 8-4200.

MARCH

AMERICAN HOT DIP GALVANIZERS ASSN., INC.—Annual meeting, Mar. 22-23-24, The Royal Orleans, New Orleans. Association headquarters are at 5225 Manning Place, N.W., Washington. Tel: EM 2-5655.

AMERICAN MACHINE TOOL DISTRIBUTORS ASSN.—Spring meeting, Mar. 23-24-25, Hotel Mark Hopkins, San Francisco. Association headquarters are at 1500 Massachusetts Ave., N.W., Washington. Tel: AD 2-3900.

CAN MANUFACTURERS INST., INC.—Annual & Board meeting, Mar. 6, Waldorf-Astoria, New York. Institute headquarters are at 821-15th St., N.W., Washington. Tel: RE 7-6242.

INDUSTRIAL DIAMOND ASSN. OF AMERICA, INC.—Annual meeting and convention, Mar. 13-17, Hollywood Beach Hotel, Hollywood, Fla. Association headquarters are at Box 175, Pompton Plains, N. J. Tel: TE 5-4920.

MALLEABLE FOUNDERS SOCIETY—Technical and Operating Conference, Mar. 1-2, Pick-Carter Hotel, Cleveland. Society headquarters are at 781 Union Commerce Bldg., Cleveland. Tel: MA 1-1690.

NATIONAL ASSN. OF CORROSION ENGINEERS—17th Annual conference & Corrosion Show, Mar. 13-17, Buffalo, N. Y. Association headquarters are at 1061 M & M Bldg., Houston. Tel: CA 4-6108.

PRESSED METAL INSTITUTE—Spring technical meeting, Mar. 22-23-24, Belmont Plaza Hotel, New York. Institute headquarters are at 3673 Lee Rd., Cleveland. Tel: SK 1-8855.

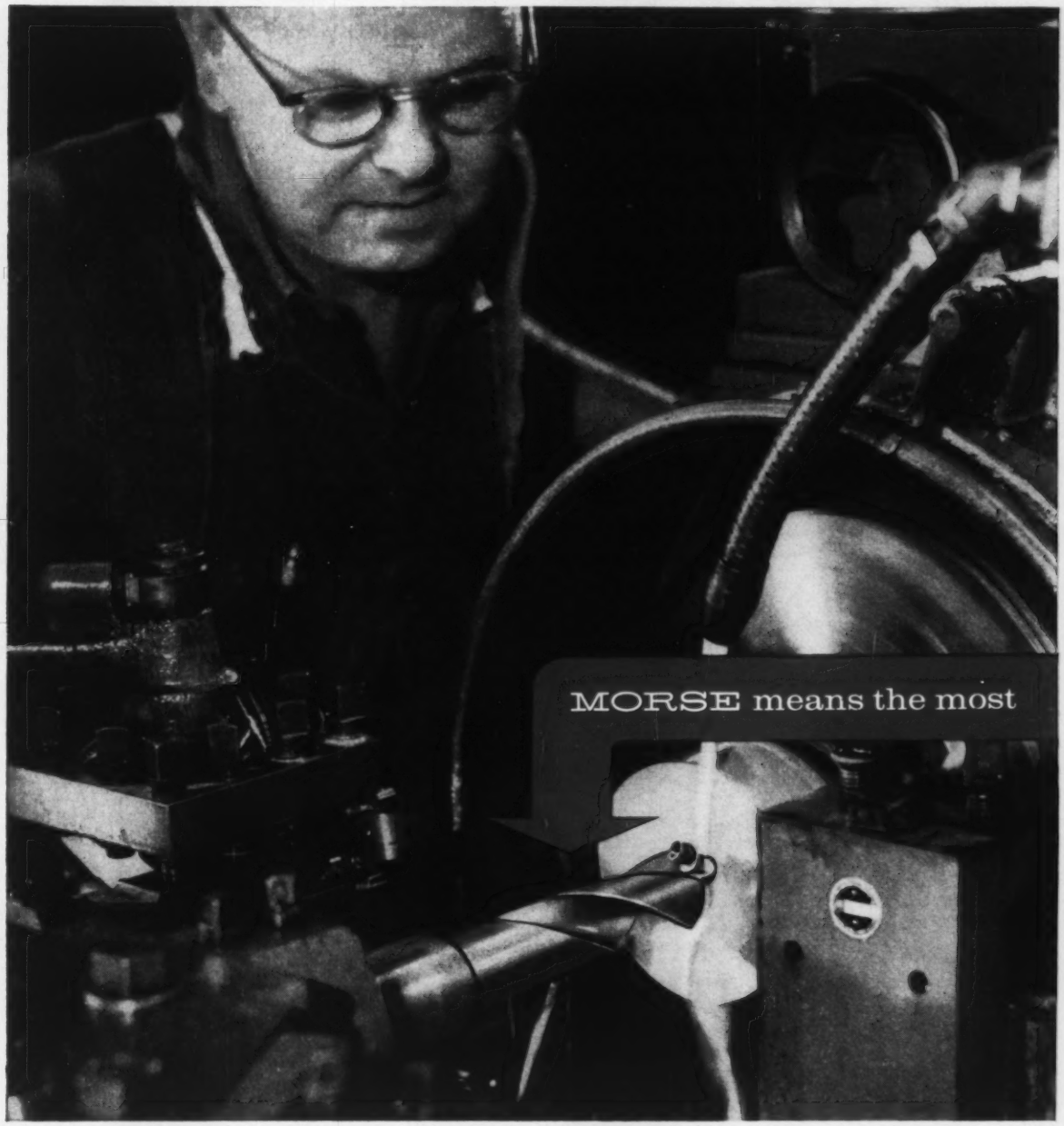
SOCIETY FOR NON-DESTRUCTIVE TESTING — Western regional convention, Mar. 20-24, Ambassador Hotel, Los Angeles. Society headquarters are at 1109 Hinman St., Evanston. Tel: UN 4-2842.

STEEL FOUNDERS' SOCIETY OF AMERICA—Annual meeting, Mar. 11-12-13-14, Drake Hotel, Chicago. Society headquarters are at 606 Terminal Tower, Cleveland. Tel: MA 1-7350.

APRIL

AMERICAN SOCIETY OF LUBRICATION ENGINEERS — Annual meeting and exhibit, Apr. 11-12-13, Bellevue-

with men who know cutting tools... it's MORSE everytime



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I = Thorough INOCULATION

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U = URITE, a Denser, Tighter, Tougher, Better Machining Iron

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MEETINGS

Stratford, Phila. Society headquarters are at 5 North Wabash Ave., Chicago. Tel: DE 2-1298.

AMERICAN WELDING SOCIETY — Annual meeting, Apr. 17-21, Hotel Commodore, New York. Society headquarters are at 33 W. 39th St., New York. Tel: PE 6-9220.

AMERICAN WELDING SOCIETY, INC. —Welding Exposition, Apr. 18-20, N. Y. Coliseum, New York. Society headquarters are at 33 W. 39th St., New York. Tel: PE 6-9220.

ASSN. OF IRON AND STEEL ENGINEERS—Spring conference, Apr. 24-25-26, Jefferson Hotel, St. Louis. Association headquarters are at 1010 Empire Bldg., Pittsburgh. Tel: AT 1-6323.

COPPER & BRASS WAREHOUSE ASSN., INC.—Annual meeting, Apr. 11-14, Colorado Springs, Colo. Association headquarters are at 1900 Arch St., Phila. Tel: LO 4-3484.

GAS APPLIANCE MANUFACTURERS ASSN., INC.—Annual meeting, Apr. 5-7, Boca Raton Hotel and Club, Boca Raton, Fla. Association headquarters are at 60 E. 42nd St., New York. Tel: MU 2-8743.

THE METALLURGICAL SOCIETY OF AIME—44th National Open Hearth Steel Conference, Apr. 10-12, Sheraton Hotel, Phila. Society headquarters are at 29 West 39th St., New York. Tel: PE 6-9220.

METAL POWDER INDUSTRIES FEDERATION — 17th Annual technical meeting and Powder metallurgy show, Apr. 24-25-26, Hotel Sheraton-Cleveland, Cleveland. Federation headquarters are at 60 E. 42nd St., New York. Tel: MU 2-7889.

NATIONAL SCREW MACHINE PRODUCTS ASSN.——Annual industry meeting, Apr. 30-May 3, Somerset Hotel, Boston. Association headquarters are at 2860 E. 130th St., Cleveland. Tel: SK 1-0909.

OFFICE EQUIPMENT MANUFACTURERS INSTITUTE—Business Equipment Exposition, Apr. 17-21, New York Coliseum, New York. Institute headquarters are at 777 Fourteenth St., N.W., Washington. Tel: ST 3-5746.

RAIL STEEL BAR ASSN.—Annual meeting, Apr. 17-18, Biltmore Hotel, New York. Association headquarters are at 38 South Dearborn St., Chicago. Tel: FR 2-2873.

SCIENTIFIC APPARATUS MAKERS ASSN. — Annual meeting, Apr. 23-27, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at 20 North Wacker Drive, Chicago. Tel: ST 2-0277.

STEEL SHIPPING CONTAINER INST., INC.—Annual meeting, Apr. 11-13, Kenilworth Hotel, Miami Beach, Fla. Institute headquarters are at 600 Fifth Ave., New York. Tel: CO 5-7882.

MAY

AMERICAN FOUNDRYMEN'S SOCIETY —65th Annual castings congress & exposition, May 8-12, Brooks Hall, Civic Auditorium, San Francisco. Society headquarters are at Golf and Wolf Rds., Des Plaines. Tel: VA 4-0181.

AMERICAN IRON & STEEL INST.— General meeting, May 24-25, Waldorf-Astoria Hotel, New York. Institute headquarters are at 150 East 42nd St., New York. Tel: OX 7-5900.

AMERICAN MINING CONGRESS—Coal convention & exposition, May 15-18, Cleveland. Congress headquarters are at 1102 Ring Bldg., Washington. Tel: FE 8-2900.

AMERICAN SOCIETY OF TOOL ENGINEERS — Engineering Conference and Exhibit, May 22-26, Statler Hotel and New York Coliseum, New York. Society headquarters are at 10700 Puritan Ave., Detroit. Tel: UN 4-7300.

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MEETINGS

AMERICAN SUPPLY & MACHINERY MFRS. ASSN., INC.—Triple Industrial Supply Convention, May 23-24-25, Atlantic City, N. J. Association headquarters are at 2130 Keith Bldg., Cleveland. Tel: CH 1-7333.

ANTI-FRICTION BEARING MANUFACTURERS ASSN., INC.—Annual meeting, May 23-25, Sea View Country Club, Absecon, N. J. Association headquarters are at 60 East 42nd Street, New York. Tel: MU 7-5028.

CONCRETE REINFORCING STEEL INSTITUTE — Annual meeting, May 29-June 3, The Greenbrier, White Sulphur Springs, W. Va. Institute headquarters are at 38 S. Dearborn St., Chicago. Tel: FR 2-5060.

COPPER & BRASS RESEARCH ASSN.—Annual meeting, May 14-17, The Homestead, Hot Springs, Va. Association headquarters are at 420 Lexington Ave., New York. Tel: MU 6-2470.

DESIGN ENGINEERING SHOW—May 22-25, Cobo Hall, Detroit. Show mgt.: Clapp & Poliak, Inc., 341 Madison Ave., New York 17.

DUCTILE IRON SOCIETY — Annual meeting, week of May 8, San Francisco. Society headquarters are at P. O. Box 858, Cleveland.

ELECTRONIC INDUSTRIES ASSN.—37th Annual convention, May 24-26, Pick-Congress Hotel, Chicago. Association headquarters are at 1721 DeSales St., N.W., Washington. Tel: NA 8-3902.

INDUSTRIAL HEATING EQUIPMENT ASSN., INC.—Spring meeting, May 21-24, Hot Springs, Va. Association headquarters are at 2000 K St., N.W., Washington. Tel: FE 8-6655.

LEAD INDUSTRIES ASSN. & AMERICAN ZINC INSTITUTE (held jointly) Annual meeting, May 1-3, Drake Hotel, Chicago. Association and Institute headquarters are at 292 Madison Ave., New York. Tel: OR 9-6020.

MACHINERY DEALERS NATIONAL ASSN.—Annual convention, May 15-16-17-18, Shoreham Hotel, Washington. Association headquarters are at 1346 Connecticut Ave., N.W., Washington. Tel: CO 5-1336.

MAGNESIUM ASSN. — Annual meeting, May 21-24, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at 122 E. 42nd St., New York. Tel: OX 7-2974.

THE METALLURGICAL SOCIETY OF AIME—15th New England regional conference, May 18-19, Van Curler Hotel, Schenectady. Society headquarters are at 29 West 39th St., New York. Tel: PE 6-9220.

NATIONAL MACHINE TOOL BUILDERS ASSN.—Spring meeting, May 4-5, Edgewater Beach Hotel, Chicago. Association headquarters are at 2139 Wisconsin Ave., N. W., Washington. Tel: FE 7-8270.

SOCIETY FOR NON-DESTRUCTIVE TESTING — Eastern regional convention, May 17-18-19, Mt. Royal Hotel, Montreal, P.Q., Canada. Society headquarters are at 1109 Hinman St., Evanston. Tel: UN 4-2842.

STEEL SERVICE CENTER INSTITUTE —Annual meeting, May 14-17, Statler-Hilton Hotel, Washington. Institute headquarters are at 540 Terminal Tower, Cleveland. Tel: CH 1-3468.

WIRE REINFORCEMENT INSTITUTE —Annual meeting, May 29-30, The Greenbrier, White Sulphur Springs, W. Va. Institute headquarters are at the National Press Bldg., Washington. Tel: NA 8-5636.

JUNE

ALLOY CASTING INSTITUTE—Annual meeting, June 18-20. Institute headquarters are at 1001 Franklin Ave., Garden City, N. Y. Tel: PI 6-3970.

AMERICAN ELECTROPLATERS' SOCIETY—48th Annual convention, June 18-23, Statler-Hilton Hotel, Boston. Society headquarters are at 445 Broad St., Newark, N. J. Tel: HU 2-3400.

AMERICAN GEAR MANUFACTURERS ASSN.—Annual meeting, June 4-7, The Homestead, Hot Springs, Va. Association headquarters are at One Thomas Circle, Washington. Tel: ST 3-3621.

AMERICAN SOCIETY FOR TESTING MATERIALS — Annual meeting, June 25-30, Chalfonte-Haddon Hall, Atlantic City. Society headquarters are at 1916 Race St., Phila. Tel: LO 3-5315.

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS — Summer annual meeting, June 11-15, Statler-Hilton Hotel, Los Angeles. Society headquarters are at 29 West 39th St., New York. Tel: LE 2-5883.

DROP FORGING ASSN.—Annual meeting of members, June 14-17, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at 1121 Illuminating Bldg., Cleveland. Tel: SU 1-6260.

INSTITUTE OF APPLIANCE MANUFACTURERS—Annual meeting, June 5-6-7, Netherland Hilton Hotel, Cincinnati. Institute headquarters are at Shoreham Hotel, Washington. Tel AD 2-8823.

MALLEABLE FOUNDERS SOCIETY—Annual meeting, June 8-9, The Broadmoor, Colorado Springs, Colo. Society headquarters are at 781 Union Commerce Bldg., Cleveland. Tel: MA 1-1690.

THE MATERIAL HANDLING INSTITUTE, INC.—Meeting, June 18-19-20, Pittsburgh Hilton, Pittsburgh. Institute headquarters are at One Gateway Center, Pittsburgh. Tel: GR 1-1580.

NATIONAL ASSN. OF PURCHASING AGENTS — Convention and Inform-A-Show, June 4-7, The Conrad Hilton, Chicago. Association headquarters are at 11 Park Place, New York. Tel: CO 7-3677.

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ROHCO 503 STILL OR BARREL ZINC BRIGHTENER (LIQUID)—produces jewel-like bright zinc deposits; ideal where one brightener is desired for all your bright zinc baths.

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RODIPS—short-dip chromate treatments supplied as powders to brighten, passivate and protect zinc plate for improved corrosion resistance and color retention. Receptive to subsequent absorption of dyes for color identification of parts. Colors from clear blue bright through bronze.

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ROHCO 20XL and SUPER XL (LIQUID OR POWDER)—tops for producing the clearest, brightest barrel, or still cadmium; minimizes cadmium usage by improving uniformity and speed of deposit.

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RODIP AL-44—additive for aluminum bright dip. Produces increased lustre at lower temperature and suppresses acid fumes.

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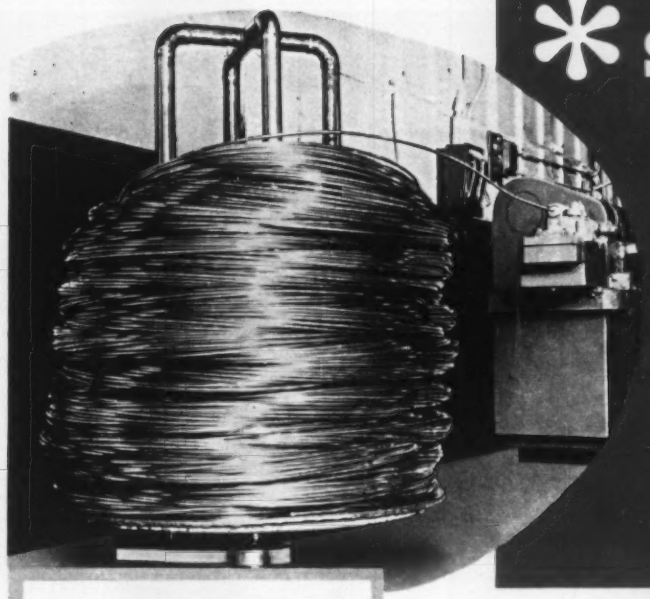

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LOW AND MEDIUM CARBON
.072″/.500″ inc. (to about 4200 lbs.)
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COIL DIMENSIONS ON REQUEST

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self-sup·port·ing *adj.* These coils are packaged so they don't require carriers of any kind (returnable or otherwise) in transit or stock.

long pro·duc·tion run *adj.* LPR's are available in weights from 1,000 lbs. up to about 4,200 lbs. to give you up to 40 miles of non stop fabricating per setup.

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* Scrap loss slashed in direct ratio to coil changes avoided
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* High-density, self-supporting coils reduced storage space by 20% to 50%
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2 SIZES:

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MEETINGS

NATIONAL TOOL & DIE MANUFACTURERS ASSN.—Summer Board meeting, June 21-24, Schroeder Hotel, Milwaukee. Association headquarters are at 907 Public Square Bldg., Cleveland. Tel: MA 1-5998.

PRESSED METAL INSTITUTE — Sales conference, June 15-16, Bedford Springs Hotel, Bedford Springs, Pa. Institute headquarters are at 3673 Lee Rd., Cleveland. Tel: SK 1-8855.

JULY

CAST IRON PIPE RESEARCH ASSN.—Annual meeting, July 26-27, Seaview Country Club, Absecon, N. J. Association headquarters are at Prudential Plaza—Suite 3400, Chicago. Tel: WH 4-1126.

AUGUST

THE METALLURGICAL SOCIETY OF AIME—Semiconductors conference, Aug. 30-Sept. 1, Ambassador Hotel, Los Angeles. Society headquarters are at 29 West 39th St., New York. Tel: PE 6-9220.

SEPTEMBER

AMERICAN DIE CASTING INSTITUTE, INC. AND THE DIE CASTING RESEARCH FOUNDATION — Annual meeting, Sept. 27-28, Edgewater Beach Hotel, Chicago. Institute headquarters are at 366 Madison Ave., New York. Tel: MU 2-2925.

AMERICAN WELDING SOCIETY—Fall meeting, Sept. 25-28, Adolphus Hotel, Dallas, Texas. Society headquarters are at 33 W. 39th St., New York. Tel: PE 6-9220.

ASSN. OF IRON AND STEEL ENGINEERS—Annual convention, Sept. 25-26-27-28, Penn-Sheraton Hotel, Pittsburgh. Association headquarters are at 1010 Empire Bldg., Pittsburgh. Tel: AT 1-6323.

NON-FERROUS FOUNDERS' SOCIETY—Annual meeting, Sept. 17-21, Shawnee Inn, Shawnee-on-the-Delaware, Pa. Society headquarters are at University Bldg., 1604 Chicago Ave., Evanston, Ill. Tel: DA 8-4175.

PRESSED METAL INSTITUTE—Annual meeting, Sept. 24-28, The Grand Hotel, Point Clear, Ala. Institute headquarters are at 3673 Lee Rd., Cleveland. Tel: SK 1-8855.

OCTOBER

AMERICAN COKE & COAL CHEMICALS INST.—Annual meeting, Oct. 23-24, The Greenbrier, White Sulphur Springs, W. Va. Institute headquarters are at 711 Fourteenth St., N.W., Washington. Tel: ST 3-0454.

AMERICAN GAS ASSN.—Annual meeting, Oct. 1-4, Dallas, Texas. Association headquarters are at 420 Lexington Ave., New York. Tel: MU 3-8200.

AMERICAN MACHINE TOOL DISTRIBUTORS ASSN.—Annual meeting, Oct. 4-5-6, Penn-Sheraton Hotel, Pittsburgh, Pa. Association headquarters are at 1500 Massachusetts Ave., N.W., Washington. Tel: AD 2-3900.

AMERICAN SOCIETY FOR METALS—Metal show, Oct. 21-27, Detroit. Society headquarters are at Metals Park, Novelty, Ohio. Tel: ED 8-5151.

AMERICAN SOCIETY OF LUBRICATION ENGINEERS — 8th conference, Oct. 17-18-19, Hotel Morrison, Chicago. Society headquarters are at 5 North Wabash Ave., Chicago. Tel: DE 2-1298.

AMERICAN SOCIETY OF TOOL ENGINEERS—Semi-annual conference, Oct. 26-27, The Royal York Hotel, Toronto, Canada. Society headquarters are at 10700 Puritan Ave., Detroit. Tel: UN 4-7300.

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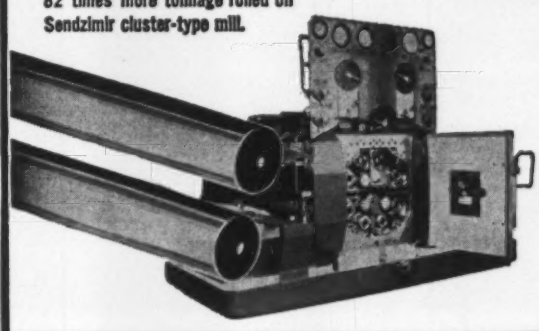
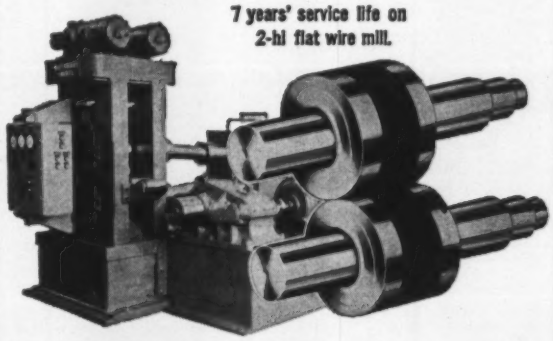
The Youngstown, Ohio plant of JONES & LAUGHLIN STEEL CORPORATION'S STAINLESS AND STRIP DIVISION (formerly Cold Metal Products Co.) reports that the TALIDE (Tungsten Carbide) work rolls used on their 4-hi cold rolling mills give INCREASED PRODUCTION, LONG SERVICE, FINE FINISH AND EXTREMELY CLOSE TOLERANCE. Over 25 pairs have been purchased during the past 20-year period —many of which are still in operation producing high quality strip steel of all analyses.

82 times more tonnage rolled on Sendzimir cluster-type mill.



7 years' service life on 2-hi flat wire mill.



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Broken or damaged carbide rolls can be reworked to first-class condition with all defects eliminated at one-half original cost. Only Metal Carbides offers this service—because of its exclusive hot press method.

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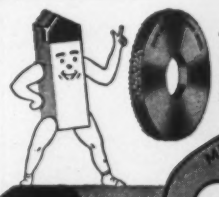

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OVER 25 YEARS' EXPERIENCE IN TUNGSTEN CARBIDE METALLURGY

MEETINGS

AMERICAN STANDARDS ASSN.—12th National conference, Oct. 10-11-12, Rice Hotel, Houston. Association headquarters are at 70 E. 45th St., New York. Tel: MU 3-3058.

CONVEYOR EQUIPMENT MANUFACTURERS ASSN.—28th Annual meeting, Oct. 7-10, Ponte Vedra Inn, Ponte Vedra, Fla. Association headquarters are at No. 1 Thomas Circle, Washington. Tel: RE 7-3584.

FOUNDRY EQUIPMENT MANUFACTURERS ASSN., INC. — Meeting Oct. 19-20-21, Greenbrier Hotel, White Sulphur Springs, W. Va. Association headquarters are at One Thomas Circle, Washington. Tel: EX 3-0073.

GRAY IRON FOUNDERS' SOCIETY, INC.—33rd Annual meeting, Oct. 18-20, Royal York Hotel, Toronto, Ontario, Canada. Society headquarters are at 930 National City-E. 6th Bldg., Cleveland. Tel: PR 1-8480.

INDUSTRIAL TRUCK ASSN. — Annual meeting, Oct. 29-30-31, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at One Gateway Center, Pittsburgh. Tel: GR 1-1580.

MAGNESIUM ASSN. — Annual convention, Oct. 22-24, Belmont Plaza, New York. Association headquarters are at 122 E. 42nd St., New York. Tel: OX 7-2974.

THE MATERIAL HANDLING INSTITUTE, INC.—Annual meeting, Oct. 29-30-31, The Greenbrier, White Sulphur Springs, W. Va. Institute headquarters are at One Gateway Center, Pittsburgh. Tel: GR 1-1580.

NATIONAL ASSN. OF SHEET METAL DISTRIBUTORS—Annual meeting, Oct. 22-25, Hotel Dennis, Atlantic City, N. J. Association headquarters are at 1900 Arch St., Phila. Tel: LO 4-3484.

NATIONAL METAL TRADES ASSN.—62nd Convention, Oct. 31-Nov. 1, The Hotel Commodore, New York. Association headquarters are at 222 West Adams St., Chicago. Tel: ST 2-2940.

NATIONAL SCREW MACHINE PRODUCTS ASSN.—Fall membership meeting, Oct. 12-15, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at 2860 E. 130th St., Cleveland. Tel: SK 1-0909.

NATIONAL TOOL & DIE MANUFACTURERS ASSN. — Annual convention, Oct. 24-28, Huntington-Sheraton Hotel, Pasadena, Calif. Association headquarters are at 907 Public Square Bldg., Cleveland. Tel: MA 1-5998.

PORCELAIN ENAMEL INSTITUTE—30th Annual meeting, Oct. 4-8, The Greenbrier, White Sulphur Springs, W. Va. Institute headquarters are at 1145 19th St., N.W., Washington. Tel: FE 8-5520.

RAIL STEEL BAR ASSN.—Semi-annual meeting, Oct. 9-10, Drake Hotel, Chicago. Association headquarters are at 38 South Dearborn St., Chicago. Tel: FR 2-2873.

ROLLING MILL MACHINERY AND EQUIPMENT ASSN., Annual meeting, Oct. 9, Duquesne Club, Pittsburgh. Association headquarters are at Farmers Bank Bldg., Pittsburgh. Tel: AT 1-0908.

SOCIETY FOR NON - DESTRUCTIVE TESTING—National (21st) convention, Oct. 23-27, Detroit. Society headquarters are at 1109 Hinman St., Evanston. Tel: UN 4-2842.

WIRE ASSN. — Annual convention, Oct. 23-26, French-Lick Sheraton, French Lick, Ind. Association headquarters are at 453 Main St., Stamford. Tel: DA 3-0482.

NOVEMBER

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS—Winter annual meeting, Nov. 26-Dec. 1, Statler Hilton Hotel, New York. Society headquarters are at 29 West 39th St., New York. Tel: LE 2-5883.

NATIONAL FOUNDRY ASSN.—63rd Annual meeting, Nov. 15-17, Savoy-Hilton Hotel, New York. Association headquarters are at 4321 St. Charles Rd., Bellwood, Ill. Tel: LI 7-7980.

NATIONAL MACHINE TOOL BUILDERS ASSN.—Annual meeting, Nov. 14-15-16, Americana Hotel, Bal Harbour, Fla. Association headquarters are at 2139 Wisconsin Ave., N.W., Washington. Tel: FE 7-8270.

STEEL FOUNDERS' SOCIETY OF AMERICA — Technical and operating conference, Nov. 13-14-15, Hotel Carter, Cleveland. Society headquarters are at 606 Terminal Tower, Cleveland. Tel: MA 1-7350.

DECEMBER

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS — 54th Annual meeting, Dec. 3-6, Hotel Commodore, New York. Institute headquarters are at 25 W. 45th St., New York. Tel: CO 5-7330.

AMERICAN ORDNANCE ASSN. — 43rd Annual industrial preparedness meeting, Dec. 6, Waldorf-Astoria Hotel, New York. Association headquarters are at Mills Bldg., Washington. Tel: DI 7-1250.

THE METALLURGICAL SOCIETY OF AIME—19th Electric Furnace Conference, Dec. 6-8, Sheraton Hotel, Phila. Society headquarters are at 29 West 39th St., New York. Tel: PE 6-9220.

SPRING MANUFACTURERS ASSN.—Annual meeting, Dec. 5-6, Biltmore Hotel, New York. Association headquarters are at Box 1440, Bristol, Conn. Tel: LU 3-4123.

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Revised Directory Of Trade Associations

This 1961 directory lists trade associations and technical societies in metalworking.

Along with headquarters addresses and society officers, telephone numbers are listed for the first time.

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610 Shoreham Bldg., Washington 5, D. C.
Pres.: General Orval R. Cook, USAF
Tel: DI 7-2315

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Managing Dir.: G. S. Jones, Jr.
Tel: CO 5-0405

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Exec. Vice Pres.: Marshall F. Allen

Alloy Casting Institute
1001 Franklin Ave., Garden City, N. Y.
Exec. Vice Pres.: E. A. Schoefer
Tel: PI 6-3970

The Aluminum Assn.
420 Lexington Ave., New York 17, N. Y.
Exec. Secy.: Donald M. White
Tel: OR 9-5580

Aluminum Extruders Council
1015 Chestnut St., Philadelphia, Pa.
Exec. Secy.: Walter H. Gebhart
Tel: WA 3-1262

Aluminum Smelters Research Institute
20 N. Wacker Drive, Chicago 6, Ill.
Secy.: Carl H. Burton
Tel: RA 6-1475

Aluminum Wares Assn.
1008 Park Bldg., Pittsburgh 22, Pa.
Secy.: Stuart J. Swensson
Tel: AT 1-8550

Aluminum Window Manufacturers Assn.
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Exec. Secy.: Donald V. Reed
Tel: MU 7-0994

American Boiler Manufacturers Assn.
1180 Raymond Blvd., Newark 2, N. J.
Mgr.: H. C. Aldrich

American Bureau of Metal Statistics
50 Broadway, New York, N. Y.
Treas.: H. Fasting
Tel: WH 4-1870

American Coke & Coal Chemicals Institute
711 Fourteenth St., N.W., Washington 5, D. C.
Exec. Secy.: Bernard M. Fitzgerald
Tel: ST 3-0454

American Die Casting Institute
366 Madison Ave., New York 17, N. Y.
Secy.: David Laine
Tel: MU 2-2925

American Electroplaters' Society
445 Broad St., Newark 2, N. J.
Exec. Secy.: John P. Nichols
Tel: HU 2-3400

American Foundrymen's Society
Golf and Wolf Rds., Des Plaines, Ill.
Gen'l Mgr.: W. W. Maloney
Tel: VA 4-0181

American Gas Assn.
420 Lexington Ave., New York 17, N. Y.
Managing Dir.: C. S. Stackpole
Tel: MU 3-8200

American Gear Manufacturers Assn.
One Thomas Circle, Washington 5, D. C.
Exec. Dir.: John C. Sears
Tel: ST 3-3621

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342 Madison Ave., New York 17, N. Y.
Secy.: A. L. Faubel

American Home Laundry Manufacturers' Assn.
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Exec. Dir.: Guenther Baumgart
Tel: AN 3-5814

American Hot Dip Galvanizers Assn., Inc.
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Secy. Treas.: C. E. Perry
Tel: EM 2-5655

American Institute of Chemical Engineers
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Exec. Secy.: V. J. Van
Tel: CO 5-7330

American Institute of Steel Construction, Inc.
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Exec. Vice Pres.: L. Abbett Post
Tel: MU 5-7374

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Exec. Vice Pres.: Max D. Howell
Tel: OX 7-5900

American Iron Ore Assn.
600 Bulkley Bldg., Cleveland 15, Ohio
Pres.: Hugo E. Johnson
Tel: CH 1-8261

American Machine Tool Distributors Assn.
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Exec. Vice Pres.: James C. Kelley
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American Manganese Producers Assn.
National Press Bldg., Washington 4, D. C.
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Tel: NA 8-9180

American Mining Congress
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Exec. Vice Pres.: Julian D. Conover
Tel: FE 8-2900

American Ordnance Assn.
Mills Bldg., Washington 6, D. C.
Exec. Vice Pres.: L. A. Codd
Tel: DI 7-1250

American Railway Car Institute
200 East 42nd St., New York 17, N. Y.
Pres.: J. W. Scallan
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Managing Dir.: A. R. Putnam
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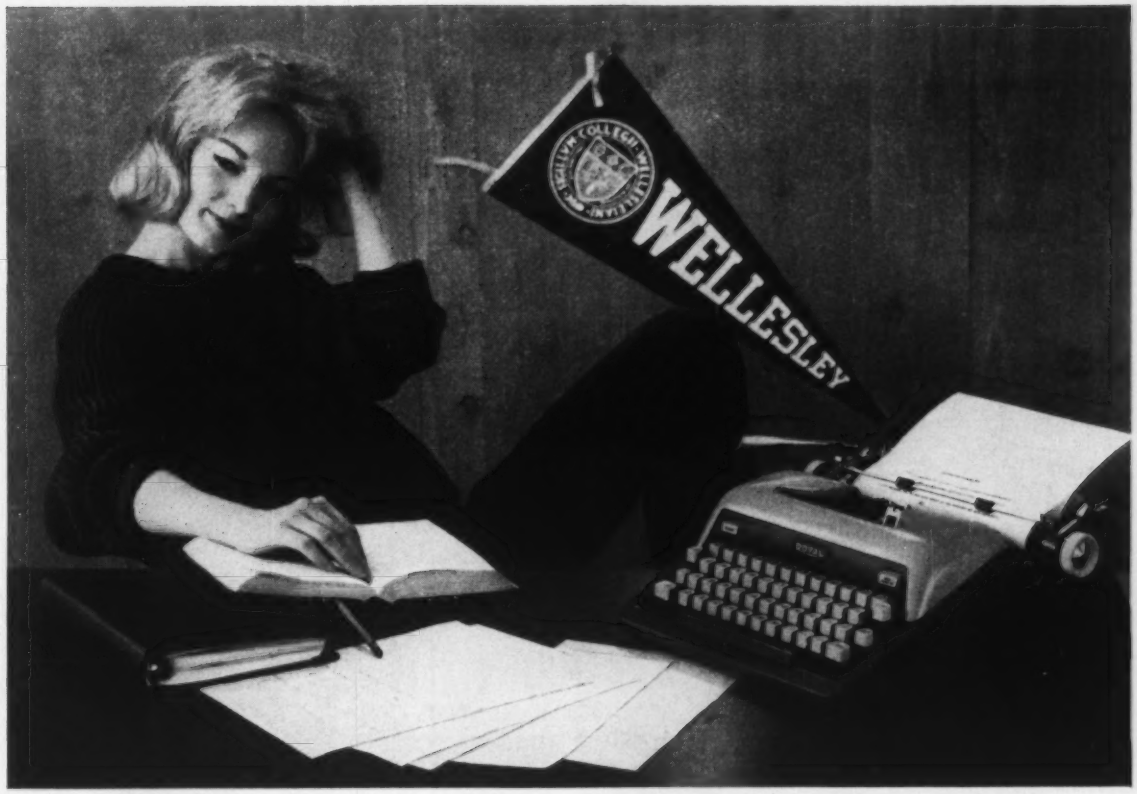

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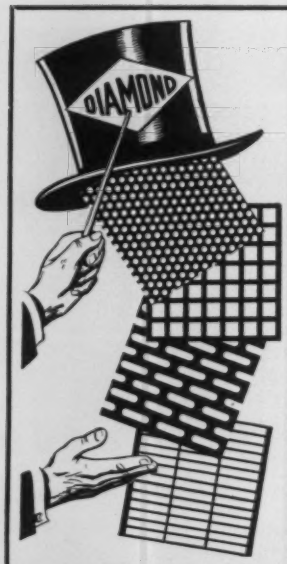

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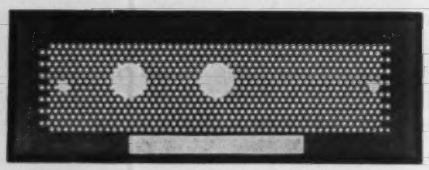

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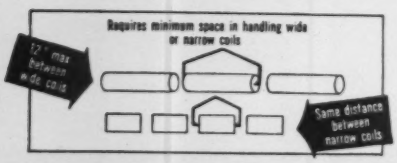

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Exec. Secy.: Calvert L. Willey
Tel: DE 2-1298

American Society of Mechanical Engineers
29 W. 39th St., New York 18, N. Y.
Secy.: O. B. Schier, III
Tel: LE 2-5883

American Society of Tool Engineers
10700 Puritan Ave., Detroit 38, Mich.
Exec. Secy.: Harry E. Conrad
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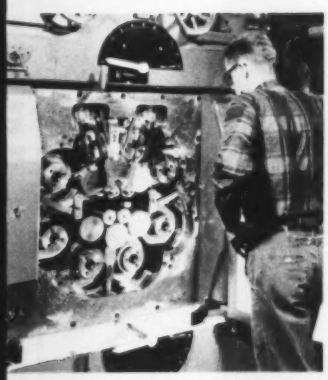

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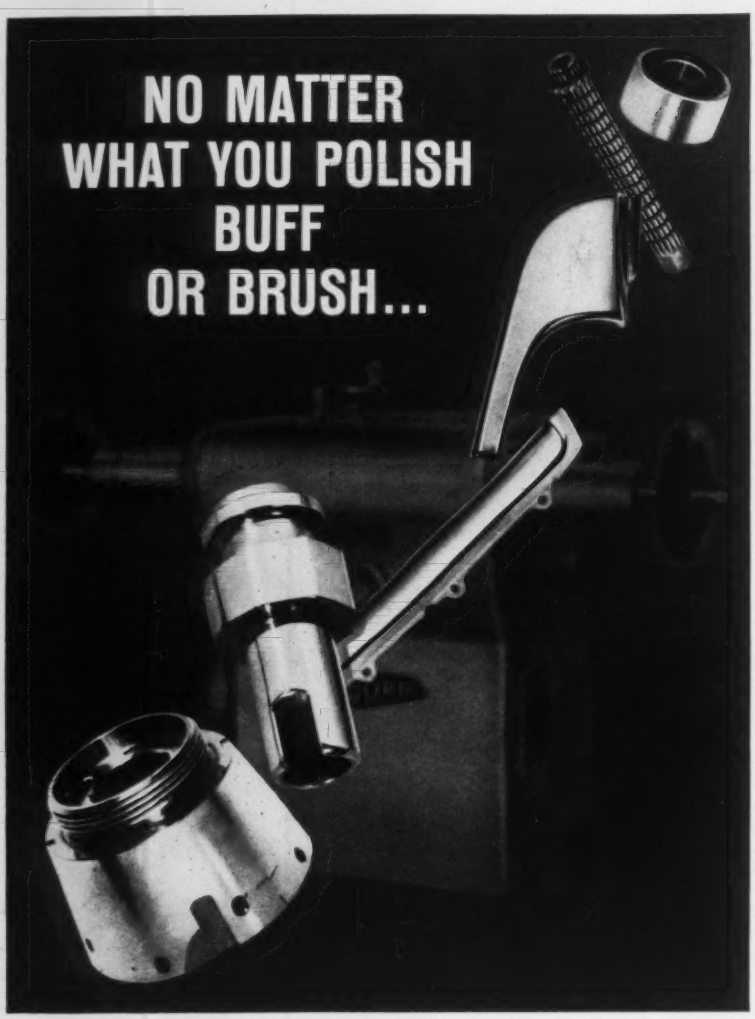

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Electric Overhead Crane Institute, Inc.
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Electric Tool Institute
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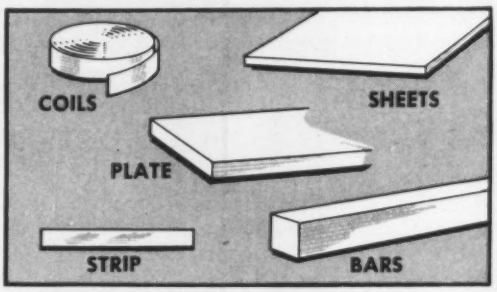

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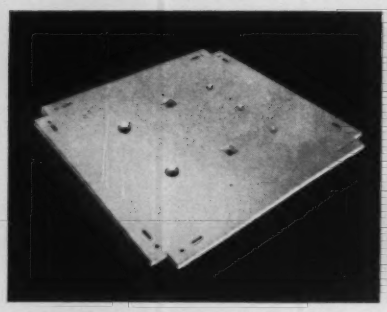

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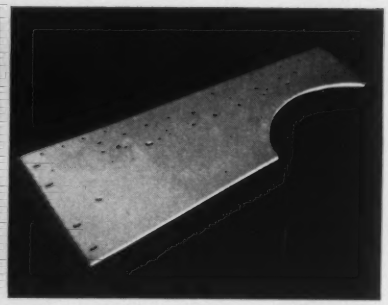

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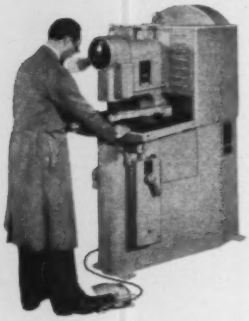

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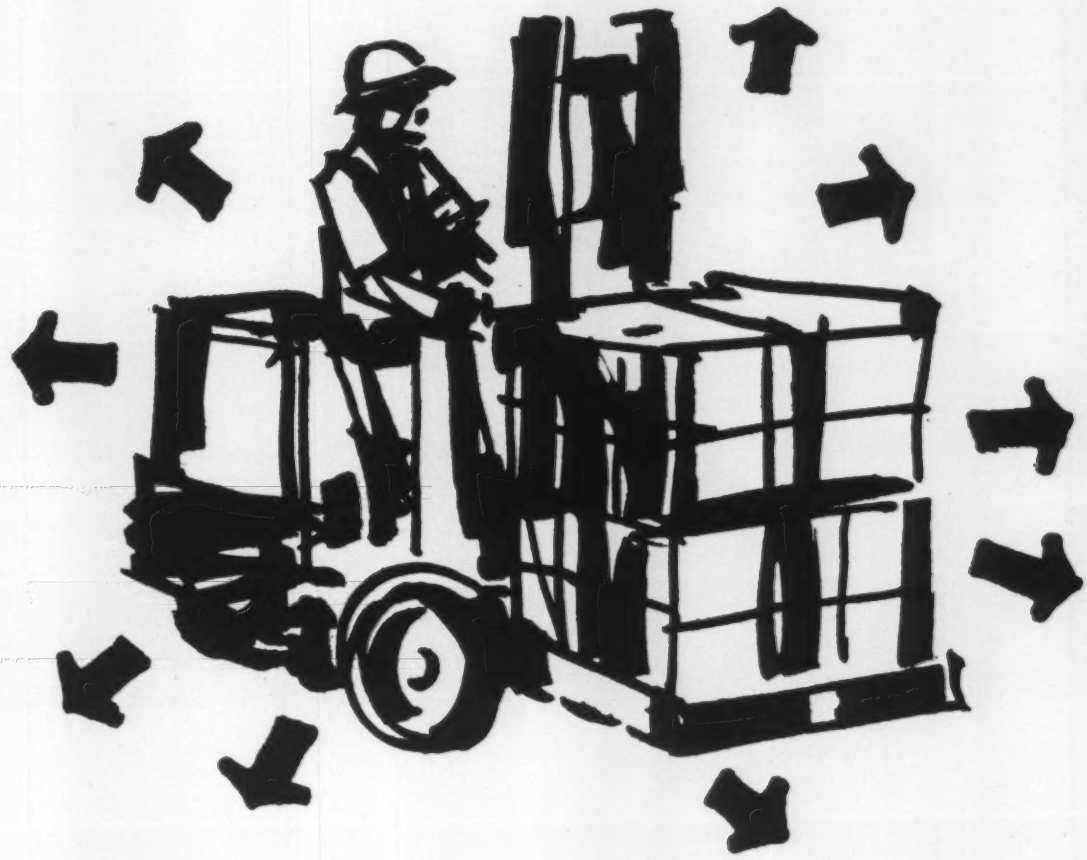

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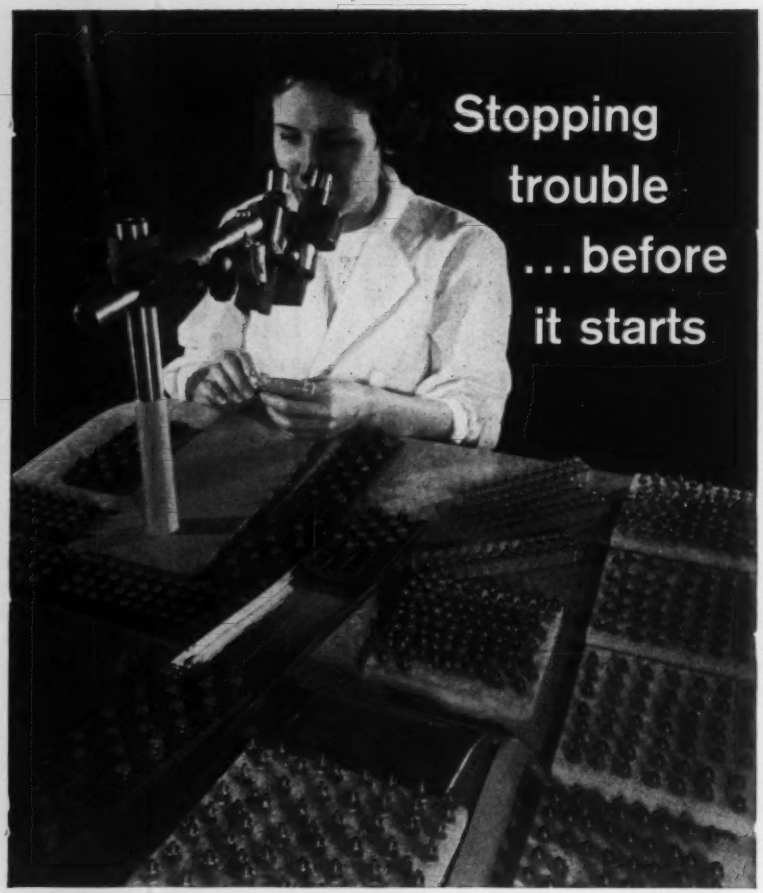

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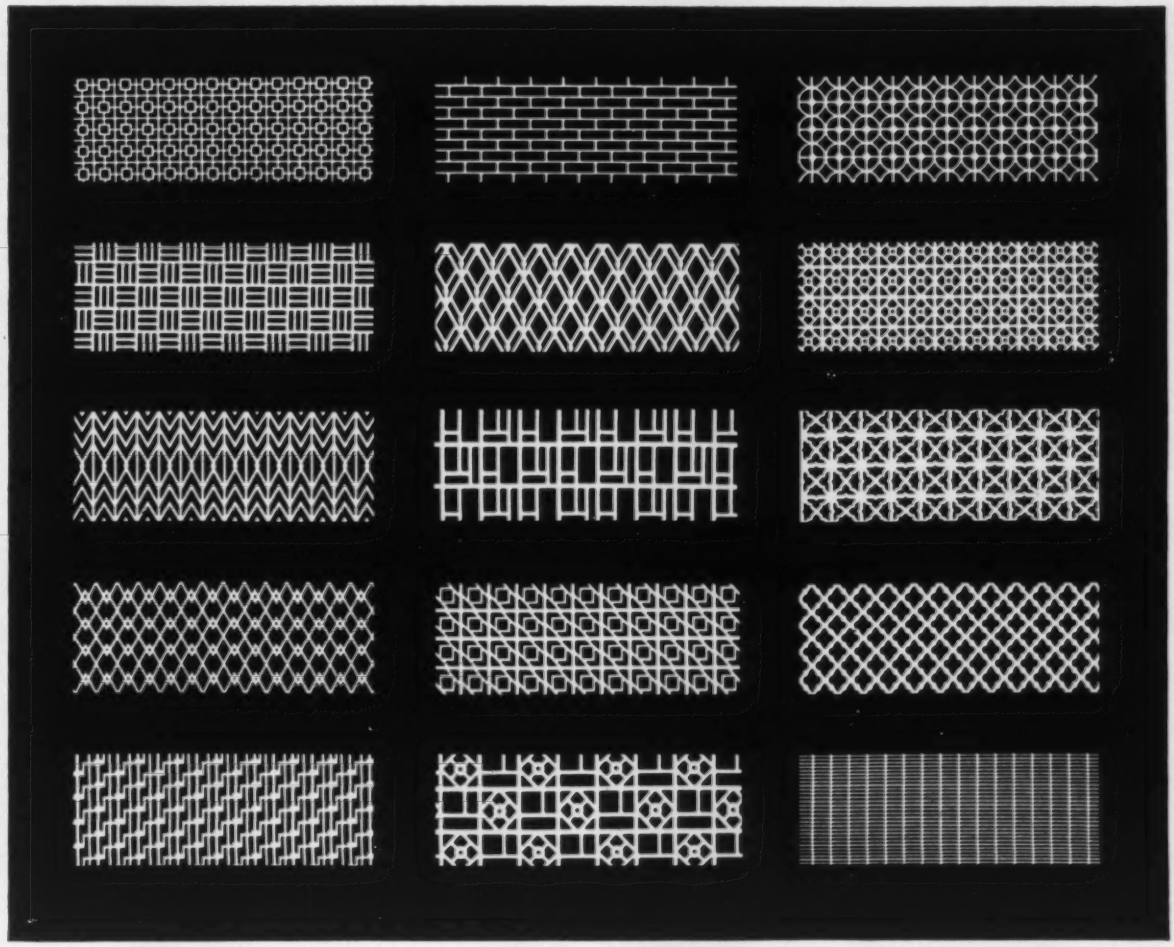

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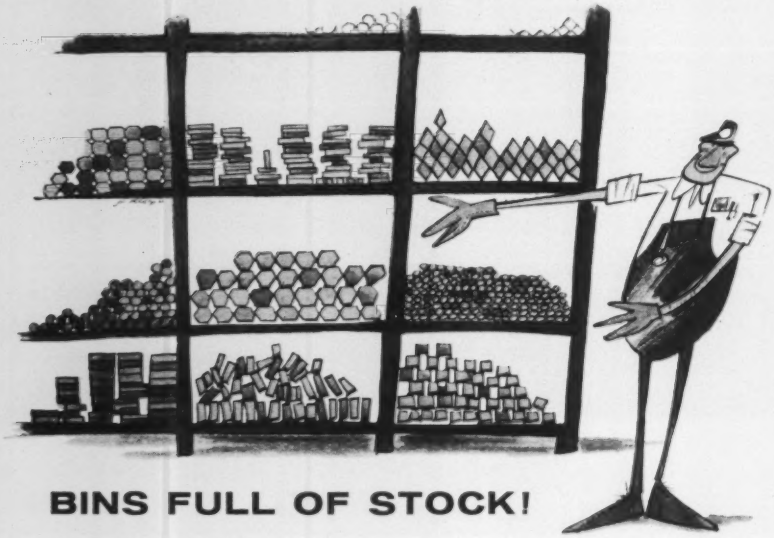

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FREE LITERATURE

and mounting methods. (General Motors Corp.)
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Product Finishing

Nine automatic machines, for high-production product finishing, are illustrated and described in a brochure. The machines permit production increases of hundreds to one over hand methods of decoration of products. (Conforming Matrix Corp.)
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Dealing with rubber products for industry, a 24-page catalog gives basic specifications and information for ordering. It also details the design and operating advantages of new products. (Raybestos-Manhattan, Inc.)
For free copy circle No. 12 on postcard

Die Accessories

Die springs and accessories are offered in an eight-page catalog. A separate net price booklet accompanies the catalog. Included is information on the selection and use of die springs. (The Producto Machine Co.)
For free copy circle No. 13 on postcard

Investment Casting

A 20-page booklet reports on the characteristics, metallurgy, markets and future trends of the American Investment casting industry. (WaiMet Alloys Co.)
For free copy circle No. 14 on postcard

Alloy Steel Series

Two multi-color brochures describe a new alloy steel series. The brochure contains detailed mechanical and chemical information about the properties of the series. Selected engineering information is also given. (Jones & Laughlin Steel Corp.)
For free copy circle No. 15 on postcard

Thin Bearings

Suggestions for replacing small-bore, heavy-section standard bearings, with 4-40 in. bore thin section bearings, are included in a bulletin. The bulletin includes a description of off-the-shelf ball radial bearings. In addition, a complete chart of ball bearings in seven series is also given. (The Kaydon Engineering Corp.)
For free copy circle No. 16 on postcard

Automatic Gaging

Automatic gages and gaging components are described in a 36-page catalog. The catalog consists of three sections. (Federal Products Corp.)
For free copy circle No. 17 on postcard

Boring Bars, Tools

A 24-page catalog explains a boring bar tooling system. It also lists the complete line of bars and related tools and accessories. The catalog describes general-purpose and production bars for line and stub boring. (Giddings & Lewis Machine Tool Co.)
For free copy circle No. 18 on postcard

Ultrasonic Cleaners

Illustrated and described in a two-color sheet, are a series of ultrasonic cleaners. The sheet contains cutaway diagrams and complete specifications of the models. (L & R Mfg. Co.)
For free copy circle No. 19 on postcard

Plastics, Chemicals

A complete line of polycarbonate resins, phenolic resins, varnishes, molding powders and fused magnesium oxide is described in a brochure. The 12-page catalog covers product features, applications and detailed technical data. (General Electric Co.)
For free copy circle No. 20 on postcard

Structural Steel

Mechanical properties and corrosion resistance of a lightweight, high-strength structural steel are described in a four page brochure. Properties of the steels, for various uses where weight-strength ratio is a factor, are covered. (Pittsburgh Steel Co.)
For free copy circle No. 21 on postcard

Panel Fastener

A six-page brochure describes a self-aligning, self-locking panel fastener. It finds use for a wide variety of removable panel applications. Features, applications, dimensional and material specifications, test data and installation methods are also contained in the literature. (Hi-Shear Corp.)
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There is nothing like stainless steel for HOMES AND HOME PRODUCTS

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Manufacturers of high quality Stainless and Carbon Steels

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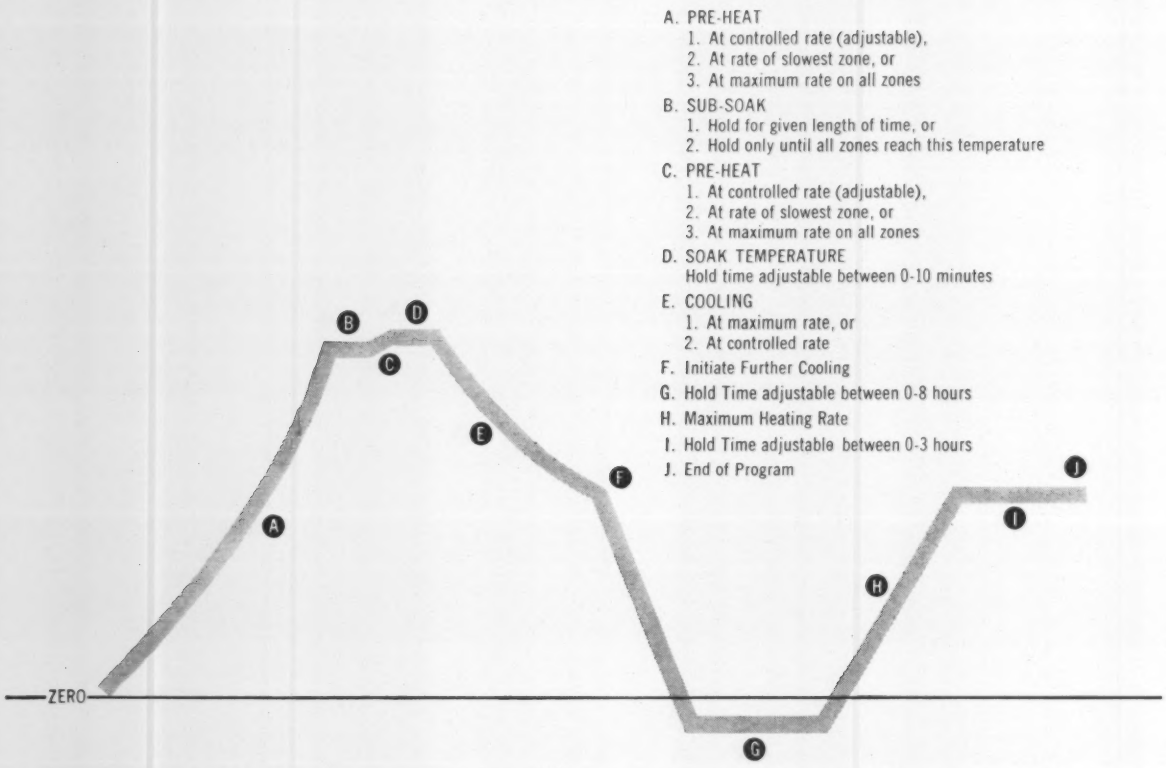
McLOUTH STAINLESS STEEL


A. PRE-HEAT
1. At controlled rate (adjustable),
2. At rate of slowest zone, or
3. At maximum rate on all zones
B. SUB-SOAK
1. Hold for given length of time, or
2. Hold only until all zones reach this temperature
C. PRE-HEAT
1. At controlled rate (adjustable),
2. At rate of slowest zone, or
3. At maximum rate on all zones
D. SOAK TEMPERATURE
Hold time adjustable between 0-10 minutes
E. COOLING
1. At maximum rate, or
2. At controlled rate
F. Initiate Further Cooling
G. Hold Time adjustable between 0-8 hours
H. Maximum Heating Rate
I. Hold Time adjustable between 0-3 hours
J. End of Program
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When temperature uniformity is a must... reproduce your heat-treating cycles with L&N's new master-slave program control

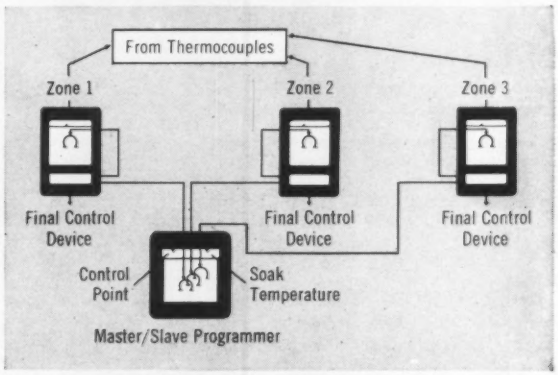
Designed for applications where temperature uniformity is of prime importance, L&N's new master-slave program control system has the flexibility to take your product—with minimum temperature gradient—through various heating and cooling cycles. It is currently being used in brazing stainless steel honeycomb panels for supersonic aircraft and missiles.

You can use this system on either batch or continuous furnaces . . . can control from either work or furnace temperatures. Heating cycles may be at a fixed rate, or at the rate determined by the slowest or fastest heating zone. As many as twenty-four zones may be automatically controlled by one master-slave programmer.

This master-slave system is available with 3-action P.A.T. control for fuel-fired furnaces; with 3-action C.A.T. control for continuous, stepless regulation of input to electric heaters or blankets; or with D.A.T. control for either electric or fuel-fired furnaces.

The system includes Speedomax® H controllers with appropriate couples and control devices for each zone; and a master-slave programmer for automatically and continuously adjusting control-point for each zone.

If your process can benefit from precisely controlled heating and cooling, you may be surprised to learn how large a return you can get by modernizing with this quality instrumentation. For details, call your nearest L&N office, or write us at 4956 Stenton Ave., Phila. 44, Pa. Ask for Process Data Sheet 660(2).



LEEDS NORTHRUP
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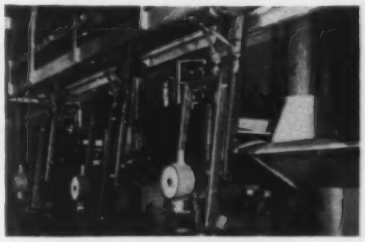
New Materials and Components

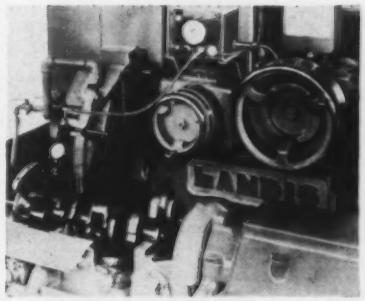
Pouring System Gives Increased Casting Yield



Fully automatic, a pouring system eliminates a pouring gang and relief crew. It's specifically for the conveyorized high-production ferrous foundry operation. It adapts to either a continuous or an indexing type mold conveyor. A bull ladle transfers metal to the holding ladle. This ladle dispenses the metal for one mold into the pouring ladle. Pouring carriage and pouring ladle move on overhead rails. (International Automation Corp.)

For more data circle No. 25 on postcard, p. 263

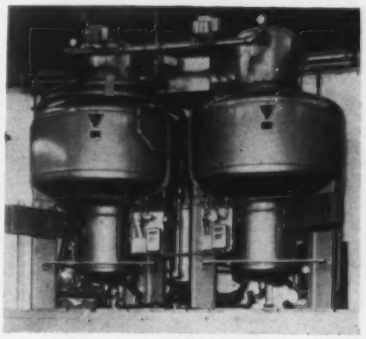
Control Gage Provides Dimensional Control



For cylindrical grinders, an air-electric gaging unit gives effective and reliable dimensional control at low cost. A power-handling relay operates directly from the air-electric switch to initiate a control signal. This signal retracts the grinding wheel. A built-in fail-safe feature provides a finish-size signal if there is a power failure. With this gaging system, there is cushioned response to work size variations. The gage installs on any plunge-cut cylindrical grinder that has hydraulically-powered wheel slide mechanism. (Federal Products Corp.)

For more data circle No. 26 on postcard, p. 263

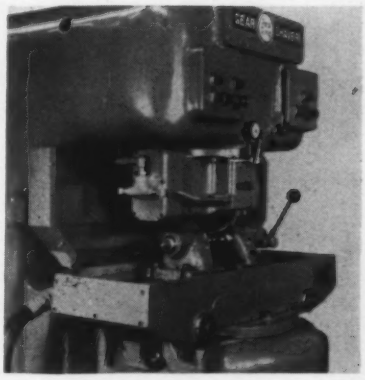
Vapor Recovery System Takes Up No Working Area



The loss of solvent through evaporation of vapors has long been a problem in the metals field. There has also been undesirable side effects which have caused finishing problems. A vapor recovery system captures solvent vapors evaporating during degreasing and cleaning operations. It does this by ducting them into a specially designed tank with a bed of activated carbon. It returns clear, reusable solvent after a steaming and decantering process. Due to the cutting of solvent costs, installations can pay for themselves in less than one year of operation. The vapor recovery systems come in 11 different automatic and manual models. They are designed for compact installation. (Vic Mfg. Co.)

For more data circle No. 27 on postcard, p. 263

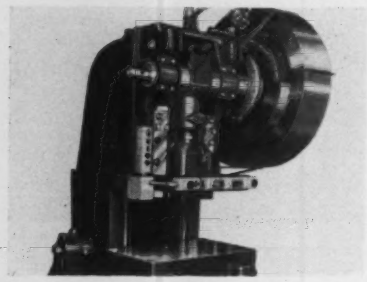
Cutter Head Design Offers Long Wear Life



Featured in improved models of gear shaving machines is a new cutter head design. The gear shaving machines finish tooth surfaces on spur and helical gears. The cutter heads on the machine offer positive ball bearing preloads and maximum ease of cutter installation. It also provides freedom of rotation. With the new cutter head design, the shaving cutter nut is loosened or tightened with the outboard support bearing in place. This avoids the possibility of bending the cutter shaft or brinelling the bearings when tightening or loosening the cutter nut with a wrench. Five preloaded ball bearings support the cutter shaft in the head. The cutter head comes in two sizes that accommodate either 9- or 12-in maximum diam cutters. (National Broach & Machine Co.)

For more data circle No. 28 on postcard, p. 263

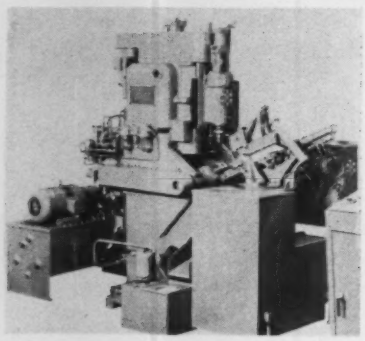
New Equipment and Machinery



Power Press Features Fast Operation

A 70-ton power press features high-tensile semi-steel frames with tie-rods built in for longer die life. Its design provides maximum ram rigidity with less deflection. Binding and misalignment of dies during heavy blanking and drawing operations are reduced to a minimum. This increases die life up to 50 pct. The press handles both large- and small-sized jobs quickly and easily. During fast operation, full lubrication is insured on the front and rear ways when the press is upright or inclined. (Havir Mfg. Co.)

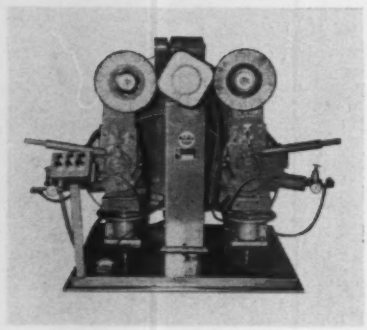
For more data circle No. 29 on postcard, p. 263



Hydrohoner Microhones Truncated Spheres

Hydraulically - operated, a machine generates the final geometric accuracy, size and surface finish. It is capable of high-production microhoning of truncated spheres (ball studs). The efficient, rugged design of the machine and the tool permits accurate, uniform stock removal on every point of the ball. A universal, intra-flow ball adaptor provides proper seating of the abrasive cup on the workpiece. Coolant flows to the tool and abrading area during the microhoning cycle. Automatic workpiece clamping and ejecting eliminates manual operations. The head positions at different heights. (Micromatic Hone Corp.)

For more data circle No. 30 on postcard, p. 263



Machine Accomplishes Both Buffing and Coloring

Self-contained, a double-head automatic polishing and buffing machine finishes round- or oval-shaped parts. It also handles parts of rectangular shape having rounded corners. The machine gives a combination cut and color buffing operation for high luster finishing of parts. Depending on part size, shape and finish required, production rates of from 60-150 finished parts per hour are possible. The machine features automatic control of finishing wheel pressure to suit part shape requirements. Air - line pressure, directed to cylinders controlling the wheel contact pressure, varies automatically. It does this when contact surfaces change. (Acme Mfg. Co.)

For more data circle No. 31 on postcard, p. 263

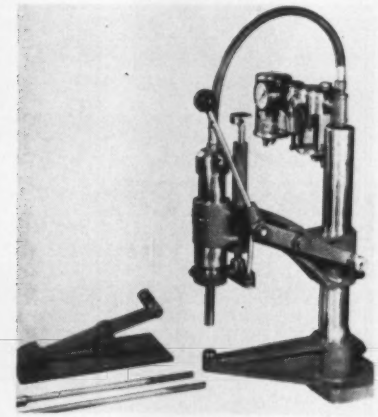
Precision Turret Lathe Has Stick Controls

What are you looking for in a precision turret lathe? Here's a new design which may meet your needs. The lathe uses a single lever to start the spindle and select any speed up to 4800 rpm. During a run, the same lever can change spindle speeds or instantly stop or reverse the spindle. A push button on the top of the lever opens and closes the collet or step chuck. Stops may be pre-set to desired speeds. The lathe's automatic indexing turret has hardened-steel slides. The turret slide passes over the double-tool cross slide. This makes possible adjustments in both the horizontal and vertical plane, for accurate alignment of turret head to spindle. (Rivett Lathe & Grinder, Inc.)

For more data circle No. 32 on postcard, p. 263

Impact Machine

Bench mounted, a repeating air hammer has a deep 9-in. throat clearance. Its anvil is the horn type. Operation is by foot pedal or hand lever. A feature of the machine is that valving is internal. Actuation is by contact pressure of the tool on the work. Repetition of the hammer varies from 3000-6000 times per minute according to the air pressure used. The machine is useful for riveting, staking, inserting bearings and bushings, parts assembling and for working and shaping sheet metal. (Heidrich-Nourse Co.)



For more data circle No. 33 on postcard, p. 263

Surface Grinder

A vertical spindle surface grinder swings and grinds to the center of work up to 108-in. diam. The machine has a 96-in. diam and full magnetic chuck. The chuck holds a work load up to 10,000 lb. (The Blanchard Machine Co.)

For more data circle No. 34 on postcard, p. 263

Depth Gage

For small holes, a depth gage is useful for any hole or indentation inspection on parts where depth control is necessary. The gage is direct reading from 0-½ in. in 0.001-in. graduations. The contact will enter any hole down to 0.062-in. diam. The gage has a three-point support base. It may also be used without it as a hand gage. (Unigage Corp.)

For more data circle No. 35 on postcard, p. 263

Knockout punch! In seconds, fire can have your business on the ropes. Keep your guard up by protecting storage rooms for volatile solvents, gases, flammable liquids with a *fully-automatic* Kidde carbon dioxide extinguishing system. U.L. and F.M.-approved Kidde systems actuate at the first flash of fire, smother it in seconds, leave no mess, turn off power and sound an alarm. Kidde's 35 years' experience can help you protect *any* hazard. Write today and find out how.

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WASHINGTON STEEL CORPORATION

I-L WOODLAND AVENUE WASHINGTON, PA.

Early '61 Market Is Erratic

The first quarter outlook for steel is already clouded by some predictions of automotive cutbacks later on in February.

The market is erratic, subject to product, geographic, and other influences. Order patterns also vary between individual mills.

■ The January steel market is taking on some erratic characteristics. Wide variations by product, individual mill, and geographic area are taking some of the strength out of the expected pickup.

To further darken the outlook, February is looking questionable as prospects of automotive cutbacks grow more likely. For many months, the automotive market has been the main sustaining factor in the market. Now, unless sales of new cars pick up, cutbacks in auto production—and steel orders—seem inevitable.

Current Picture—For January, the automotive order picture shows improvement over December, probably 10 pct. But this has to be put into perspective in view of the poor state of December business.

At the moment, February automotive orders are spotty, but overall are at the January level. But unless new car sales show a surprisingly strong increase, steel salesmen in Detroit expect downward adjustments.

Reasons Why—There are a number of reasons for the less-than-optimistic automotive outlook. First, 1960 was a very good year and two outstanding years seldom come in succession. Second, inventories remain high. And, third, the general pessimistic outlook for the overall economy comes on top of a seasonal decline in new car interest.

On the product rundown, January gains are expected for tinplate, hot-rolled sheet, and galvanized sheet. Slight gains are looked for in cold-rolled and long terne sheet. For most other products, mills can not put together a real pattern until the month progresses.

Inventories at Low Ebb—One factor that gives some strength to the market is the volume of rush orders and order juggling. This means that inventory levels are at the bottom and any kind of an upturn in steel consuming industries will bring a sharp reaction to the steel market.

As a result of the absence of inventory cushions, fast delivery can be the factor in making a sale. Competition between the mills for shortest possible delivery time is the keenest in years.

The Long Look—As the year progresses, the steel industry will be sensitive to seasonal factors as never before in the post-war period. Inventory swings previously have dominated other market influences. Now, shipments are following consumption closely.

As 1961 gets under way, the general outlook is something like this: A small pickup in January, followed by a slight downtrend through February. Any significant upturn is not looked for before March.

By mid-year, anti-recession measures should be taking effect and it is hoped that the recession cycle should be coming to an end.

New Method of Reporting Steel Production

Starting in the Jan. 12 issue of The IRON AGE, the steel operating rates will be discontinued. Instead, a new set of tonnage figures and indexes, compiled by the American Iron & Steel Institute, will be reported on this page. Below is a comparison of former statistics reported and the new set, which was not available for this issue.

FORMER BASIS

1. Total ingot output for previous week, TONS OF INGOTS
2. Total ingot output for previous week, INDEX (1947-49 = 100)
3. (Not currently reported)
4. Estimated ingot output for forthcoming week, TONS
5. Estimated ingot output for forthcoming week, INDEX
6. Actual ingot output for one month ago, TONS OF INGOTS
7. Actual ingot output for one month ago, INDEX
8. (Not currently reported)
9. (Not currently reported)
10. (Not currently reported)
11. Ingot output in 11 steelmaking districts, PCT OF CAPACITY
12. Estimated output in steelmaking districts, PCT OF CAPACITY
13. (Not currently reported)

NEW BASIS

1. Total ingot output for previous week, TONS OF INGOTS
2. Total ingot output for previous week, INDEX (1957-59 = 100)
3. Comparison of past week's output with previous week, PERCENT
4. (Will not be reported)
5. (Will not be reported)
6. (Will not be reported)
7. (Will not be reported)
8. Output, year to date, TONS OF INGOTS
9. Output, year to date in previous year, TONS OF INGOTS
10. Comparison of year to date output with previous year, PERCENT
11. (Will not be reported)
12. (Will not be reported)
13. Ingot output in 11 steelmaking districts, INDEX (1957-59 = 100)

Foundries Await Turning Point

The foundry trade isn't moving forward or backward just now. But one authority says it is waiting to make a comeback.

The comeback for foundrymen will follow other industries.

■ The foundry trade is still gyrating from one month to another. But a leading authority says it will make a comeback shortly after other industries.

New order figures of the Foundry Equipment Manufacturers Assn. (see chart) indicate that while the industry activity is now substantially below other metalworking areas, it hasn't dropped to the levels of the 1958 recession.

Einar Borsch, vice president of the association and the National Metal Abrasives Co., Cleveland, says, "We feel that there is still a good backlog of demand for modernization-type equipment. This will be forthcoming as soon as the turning point is reached.

Faces Variations—"The foundry industry is subject to stronger variations than other groups and it usually comes in waves because foundrymen all get on the bandwagon at once."

Mr. Borsch also notes: "The slowdown in 1958 for our industry came after a two year surge of expansion. The difference this time is that the present drop-off came right after a wave of modernization was well under way. It was interrupted when the economy faltered in the spring.

"But there is still a great need for modernization and we feel equipment ordering will be resumed as soon as that turning point is reached."

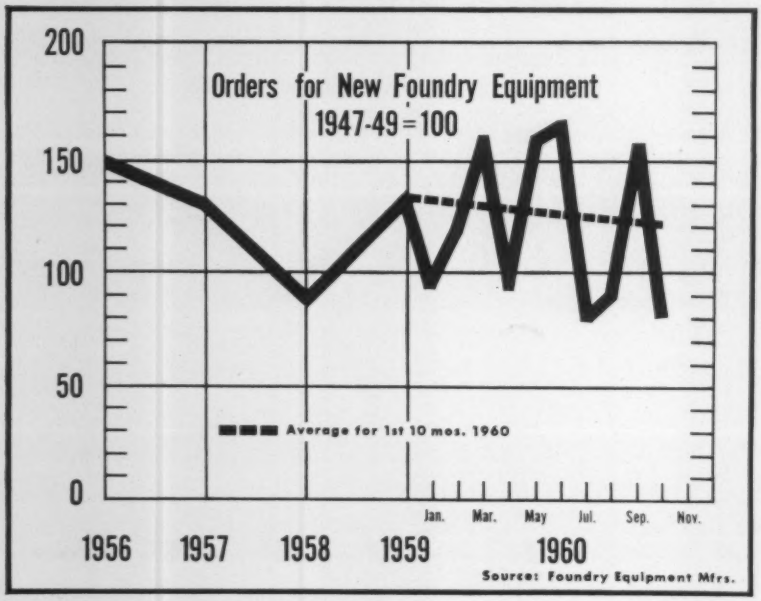
Psychological Patterns — Mr. Borsch claims the industry's buying patterns are psychological. He says the optimistic outlook at the beginning of 1960 pushed ordering to one of its highest points in recent years. When the economy started to slip, foundrymen hid.

"Our foundry show in May didn't really stimulate business either. But the trend in the first half of 1960 was definitely firm, and the need still exists."

What Categories? — Categories covered by the association statistics and reflected in the chart include equipment for blast cleaning and tumbling, dust and fume control, molding machines, material handling and processing, furnaces and acessories, and general products.

Three of the groups are well above the average and three are well below the average.

Orders Down, But Lead 1958



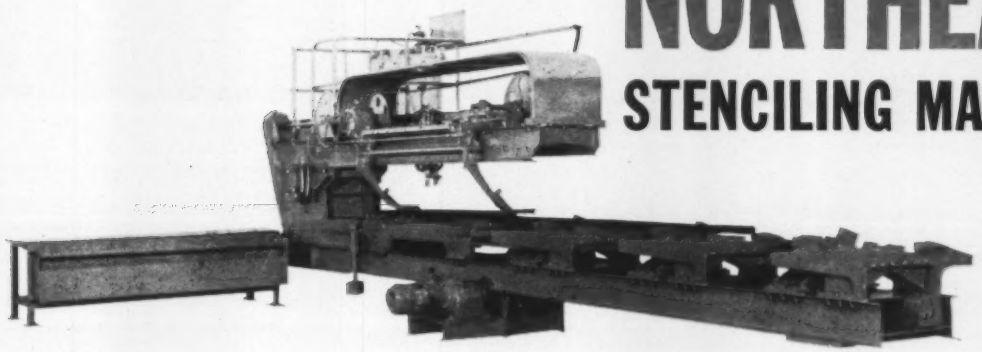
Design Ideas Might Be Money Savers

Winners in the design contest of the Gray Iron Founders Society, Cleveland, this year, indicate some strong money saving possibilities.

In one instance, a gas burner manifold for an oil refinery was made of a heavy bent pipe with welded outlets. In use, it has a tendency to distort. The part was designed using a ductile iron casting which shaved the total cost from $36.46 to $8.24.

Material cost, dropping from $27.08 to $6.40, was the biggest savings according to the contest winner, William E. Hudson, National Airoil Burner Co.

NORTHEAST
STENCILING MACHINES



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Warehouse Prices Slide in Midwest

Steel service centers in the Midwest have cut prices again by $2 to $3 a ton.

And they have returned to the order-quantity pricing system, doing away with item extras.

■ Midwest buyers of warehouse steel got a year-end bonus from steel service centers in a revised pricing system. The bonus is in the form of lower costs for average buyers and simplification of figuring extras.

Warehouses there have dropped the item-order quantity pricing system installed in mid-1959. And they are returning to the order-quantity system in effect before.

For the buyer who begins combining small item quantities into large orders, savings can be as much as $2-3 per ton, warehousemen believe.

Price Cut Spreads—Price trimming was still spreading at the end of last week. Metalworking centers already under the new system include: Chicago, Milwaukee, Cleveland, Indianapolis, Cincinnati, Detroit, St. Louis, Louisville, and Columbus. And the price structure is under pressure in Minneapolis-St. Paul, and Rockford, Ill.

Warehouse officials say they have no plans to change the price structure in other areas. But some concede that a break at Cleveland generally means changes along the East Coast. A break in the eastern market would probably start in Pittsburgh.

What's Out — The abandoned system was an attempt by service centers to adapt pricing on small orders to actual handling costs.

For example, Chicago users paid an item extra of $2.50 per 100 lb for items under 400 lb in a total order of 20,000 lb. This extra has been eliminated.

Discounts will now be figured only on the basis of the total size of the order, regardless of the number of items involved.

Other Changes — At the same time as they dropped item extras, warehouses raised some order quantity prices. For this reason, customers buying only a small quantity of a single item could end up paying slightly more for it. But studies have shown that most service center customers order a variety of types of steel to be combined in a single order.

The new base quantity price at Chicago warehouses for 100 lb of hot-rolled sheets, for example, was increased from $8.72 to $9.37, up 65¢ per 100 lb. Balanced against this is the elimination of the item-quantity extras which ranged from 25¢ to $3.00 or more per 100 lb, depending on size of the item and the total order. .

Sheet and Strip—No significant change from December is expected in January. Automotive still controls the market. And along the **East Coast** automakers are cutting back on orders, while other users are ordering only enough to fill inventory holes. Some **Pittsburgh** producers say some January tonnage was shifted back to December. This helped December but does nothing for January. An auto stamper admits such a shift because it underestimated production schedules. But it plans no larger order this month than last—and even warns of sharp cutbacks planned for February. There are similar reports from **Detroit** where January orders are little better than December, and February's are spotty. **Chicago** mills say automotive sheet buying is off to a slow start, and orders are below expected levels.

Bars—Mills have little more than hope to bolster the bar market. **Pittsburgh** mills hope January will be a little better than November, the best month of the second half —but they're still waiting for orders. A **Detroit** salesmanager for a **Midwest** producer is hopeful that January will show an improvement over December. He says the company is hearing from more customers—but for hurry-up orders. And reports from **Chicago** say hot-rolled bars are the worst selling product.

Pipe and Tubing—Oil producers say they are about ready to start buying a little seamless. But they don't plan a buying surge. They indicate ordering will be on a day-to-day basis, drawing from downriver stocks to a large extent.

Price Date Change — Beginning with this issue, prices will be effective as of Mondays—rather than Tuesdays — unless otherwise indicated. This change is caused by a 148-pct increase in circulation of The IRON AGE during the past 10 years.—Ed.

PURCHASING AGENT'S CHECKLIST

Executives' Forecast: Profit pinch will be major problem this year. P. 121

General Business Outlook: Timing the recovery will be important. P. 89

Steel Consumption: Survey forecasts use of seven major steel products in first half '61. P. 207

COMPARISON OF PRICES

(Effective Dec. 30, 1960)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price changes from previous week are shown by an asterisk (*).

	Dec. 30 1960	Dec. 27 1960	Nov. 29 1960	Dec. 29 1959
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	5.10¢	5.10¢	5.10¢	5.10¢
Cold-rolled sheets	6.275	6.275	6.275	6.275
Galvanized sheets (10 ga.)	6.875	6.875	6.875	6.875
Hot-rolled strip	5.10	5.10	5.10	5.10
Cold-rolled strip	7.425	7.425	7.425	7.425
Plate	5.30	5.30	5.30	5.30
Plates, wrought iron	14.10	14.10	14.10	13.55
Stainl's C-R strip (No. 302)	52.00	52.00	52.00	52.00
Tin and Terneplate: (per base box)				
Tin plates (1.50 lb.) cokes	$10.65	$10.65	$10.65	$10.65
Tin plates, electro (0.50 lb.)	9.35	9.35	9.35	9.35
Special coated mfg. ternes	9.90	9.90	9.90	9.90
Bars and Shapes: (per pound)				
Merchants bar	5.675¢	5.675¢	5.675¢	5.675¢
Cold finished bar	7.65	7.65	7.65	7.65
Alloy bar	6.725	6.725	6.725	6.725
Structural shapes	5.50	5.50	5.50	5.50
Stainless bars (No. 302)	46.75	46.75	46.75	45.00
Wrought iron bars	14.90	14.90	14.90	14.90
Wires: (per pound)				
Bright wire	8.00¢	8.00¢	8.00¢	8.00¢
Rails: (per 10 lb.)				
Heavy rails	$5.75	$5.75	$5.75	$5.75
Light rails	6.725	6.725	6.725	6.725
Semifinished Steel: (per net ton)				
Rerolling billets	$80.00	$80.00	$80.00	$80.00
Slabs, rerolling	80.00	80.00	80.00	80.00
Forging billets	99.50	99.50	99.50	99.50
Alloys, blooms, billets, slabs	119.00	119.00	119.00	119.00
Wire Rods and Skelp: (per pound)				
Wire rods	6.40¢	6.40¢	6.40¢	6.40¢
Skelp	5.05	5.05	5.05	5.05
Finished Steel Composite: (per pound)				
Base price	6.196¢	6.196¢	6.196¢	6.196¢

	Dec. 30 1960	Dec. 27 1960	Nov. 29 1960	Dec. 29 1959
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	$70.11	$70.11	$70.11	$70.57
Foundry, South Cin'ti	71.92	71.92	71.92	73.87
Foundry, Birmingham	62.50	62.50	62.50	62.50
Foundry, Chicago	66.50	66.50	66.50	66.50
Basic, del'd Philadelphia	69.61	69.61	69.61	70.07
Basic, Valley furnace	66.00	66.00	66.00	66.00
Malleable, Chicago	66.50	66.50	66.50	66.50
Malleable, Valley	66.50	66.50	66.50	66.50
Ferromanganese, 74-76 pct Mn, cents per lb.‡	11.00	11.00	11.00	12.25
Pig Iron Composite: (per gross ton)				
Pig iron	$66.32	$66.32	$66.32	$66.41
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	$29.50*	$27.50	$26.50	$42.50
No. 1 steel, Phila. area	34.50*	33.50	33.50	41.50
No. 1 steel, Chicago	29.50*	26.50	25.50	39.50
No. 1 bundles, Detroit	27.50*	23.50	21.50	37.50
Low phos., Youngstown	33.50*	29.50	28.50	48.50
No. 1 mach'y cast, Pittsburgh	44.50	44.50	45.50	55.50
No. 1 mach'y cast, Phila.	47.50	47.50	47.50	54.50
No. 1 mach'y cast, Chicago	44.50*	42.50	41.50	60.50
Steel Scrap Composite: (per gross ton)				
No. 1 hvy. melting scrap	$31.17*	$29.17	$28.50	$41.17
No. 2 bundles	21.50*	19.17	18.50	27.83
Coke, Connellsville: (per net ton at oven)				
Furnace coke, prompt	$14.75-15.50	14.75-15.50	14.75-15.50	14.75-15.50
Foundry coke, prompt	18.50	18.50	18.50	18.50
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	30.00	30.00	30.00	33.00
Copper, Lake, Conn.	30.00	30.00	30.00	33.00
Tin, Straits, N. Y.	101.50†	101.50	102.75	98.50
Zinc, East St. Louis	12.50	12.50	13.00	12.50
Lead, St. Louis	11.00	11.00	11.80	11.80
Aluminum, ingot	26.00	26.00	26.00	28.10
Nickel, electrolytic	74.00	74.00	74.00	74.00
Magnesium, ingot	36.00	36.00	36.00	36.00
Antimony, Laredo, Tex.	29.50	29.50	29.50	29.50

† Tentative. ‡ Average. ** Revised.

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo and Birmingham.

Steel Scrap Composite

Average of No. 1 heavy melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

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*Appears in the Dec. 29-Jan. 12 issues.

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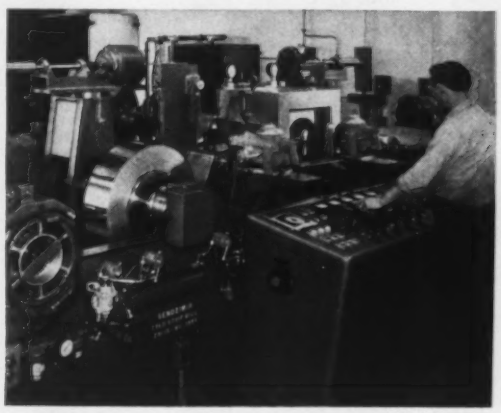

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Year Ends With Prices Rising

The scrap market made its biggest gain since last spring.

Industrial and auto lists showed prices up. Export demand and bargain levels were also factors.

■ The scrap market came to a close in 1960 with its sharpest gains since spring.

Most prices in key areas climbed on industrial and automotive lists. Export demand in port areas was also a major factor. Many scrapmen say consumers were grabbing at bargain prices while there was still a chance.

The biggest price gains were in Chicago and Pittsburgh. According to one Pittsburgh mill, however, industrial prices were based 75 pct on broker speculation. The mill says there has been nothing in the way of steel orders or mill commitments for scrap to warrant extreme bullishness.

Another mill in Pittsburgh notes there must have been strong consumer support to bring the sharp and general increase in the industrial prices.

The IRON AGE composite price for No. 1 heavy melting scrap climbed from last week's $29.17 to $31.17. The composite price of this grade for 1960 is $32.95. The IRON AGE composite price for 1959 was $40.49.

Pittsburgh—Prices moved sharply upward this week as both industrial and dealer grades showed new strength. Local automotive bundles sold for $5 over the price paid one month ago. A mill on the fringe of the district came out with a price to the dealer of $30 for No. 1 heavy melting. This is $3 more than the same mill paid last month. Another mill, in a nearby district, is aggressively buying openhearth scrap. Thus far, the market advance is mostly a correction from price levels that were too low even for the limited buying of recent weeks.

Chicago—The market moved up sharply on new factory lists. Expected gains of $2 were surpassed when one factory list advanced $5 to $6 over last month's prices. While some of the gains are discounted as representing export orders, later lists still show far stronger gains than scrap buyers had expected.

Philadelphia—A lack of material because of cold weather and export shipments has forced several key prices upward. Generally, scrapmen here look for the market to firm in January. However, one large pipe foundry indicates it will not buy in January. This is the first month in a long time that this foundry has been out of the market. What effect this will have is still a big question.

New York — The inclement weather of recent weeks has created a situation of premium prices for scrap at the docks. Other than this, there is no new activity.

Detroit — The market continues to climb as domestic mills and exporters compete for the area's attractively-priced scrap. January's industrial list buy was split about 50-50 by domestic and export customers.

Cleveland—The market is up $3 in the Valley based on a sizable mill order for premium electric furnace grades at $35. This came in the wake of a jump of about $5 in price for auto production lists over a month ago due to export demand. The next week or two will decide whether or not this is a real comeback.

Cincinnati—Area lists jumped $4 or better and will probably be shipped out of the district. Only small orders are in prospect from a local mill, but a price increase is expected. Considerable tonnage will move to upriver markets.

St. Louis — Further gains of $1 and $2 for some railroad items injected more strength into the market. Supplies remain tight. Mill buying at present is near a standstill.

Birmingham—There was no new scrap buying in the district this week. The export market, however, continues active and strong. A stronger domestic market is anticipated now that the first quarter is here.

Buffalo—There is no change in the market and prices remain the same. As yet, dealers have received no orders for January.

Boston—A gain in export activity resulted in several price jumps this week. The domestic market remains at a standstill.

West Coast—The export market is strong. The flow of scrap into dealer's yards is very slow. Some dealers say if the mills start buying there won't be enough scrap to go around.

Houston—Broker prices remain unchanged. The district mill plans to make a few purchases of selected items from local dealers. It has no plans to buy through brokers.

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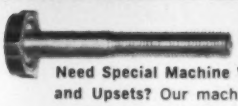

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SCRAP PRICES *(Effective Dec. 30, 1960)*

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Pittsburgh

No. 1 hvy. melting	$29.00 to $30.00
No. 2 hvy. melting	24.00 to 25.00
No. 1 dealer bundles	30.00 to 31.00
No. 1 factory bundles	36.00 to 37.00
No. 2 bundles	23.00 to 24.00
No. 1 busheling	29.00 to 30.00
Machine shop turn.	13.00 to 14.00
Shoveling turnings	18.00 to 19.00
Cast iron borings	17.00 to 18.00
Low phos. punch'gs plate	35.00 to 36.00
Heavy turnings	25.00 to 26.00
No. 1 RR hvy. melting	34.00 to 35.00
Scrap rails, random lgth	40.00 to 41.00
Rails 2 ft. and under	45.00 to 46.00
RR Specialties	38.00 to 39.00
No. 1 machinery cast	44.00 to 45.00
Cupola cast	35.00 to 36.00
Heavy breakable cast	33.00 to 34.00
Stainless	
18-8 bundles and solids	175.00 to 180.00
18-8 turnings	95.00 to 100.00
430 bundles and solids	85.00 to 90.00
410 turnings	60.00 to 65.00

Chicago

No. 1 hvy. melting	$29.00 to $30.00
No. 2 hvy. melting	27.00 to 28.00
No. 1 dealer bundles	30.00 to 31.00
No. 1 factory bundles	35.00 to 36.00
No. 2 bundles	20.00 to 21.00
No. 1 busheling	29.00 to 30.00
Machine shop turn.	15.00 to 16.00
Mixed bor. and turn.	17.00 to 18.00
Shoveling turnings	17.00 to 18.00
Cast iron borings	17.00 to 18.00
Low phos. forge crops	38.00 to 39.00
Low phos. punch'gs plate, ¼ in. and heavier	34.00 to 35.00
Low phos. 2 ft. and under	34.00 to 35.00
No. 1 RR hvy. melting	33.00 to 34.00
Scrap rails, random lgth	41.00 to 42.00
Rerolling rails	53.00 to 55.00
Rails 2 ft. and under	46.00 to 47.00
Angles and splice bars	41.00 to 42.00
RR steel car axles	54.00 to 55.00
RR couplers and knuckles	38.00 to 39.00
No. 1 machinery cast	44.00 to 45.00
Cupola cast	39.00 to 40.00
Cast iron wheel	30.00 to 31.00
Malleable	43.00 to 44.00
Stove plate	34.00 to 35.00
Steel car wheels	38.00 to 39.00
Stainless	
18-8 bundles and solids	175.00 to 180.00
18-8 turnings	95.00 to 100.00
430 bundles and solids	90.00 to 95.00
430 turnings	55.00 to 60.00

Philadelphia Area

No. 1 hvy. melting	$34.00 to $35.00
No. 2 hvy. melting	30.00 to 31.00
No. 1 dealer bundles	35.00 to 36.00
No. 2 bundles	20.00 to 21.00
No. 1 busheling	35.00 to 36.00
Machine shop turn.	12.00 to 13.00
Mixed bor. short turn.	14.00 to 15.00
Cast iron borings	14.00 to 15.00
Shoveling turnings	18.00 to 19.00
Clean cast, chem. borings	23.00 to 24.00
Low phos. 5 ft and under	35.00 to 36.00
Low phos. 2 ft punch'gs	38.00 to 39.00
Elec. furnace bundles	35.00 to 36.00
Heavy turnings	25.00 to 26.00
RR specialties	37.00 to 38.00
Rails, 18 in. and under	47.00 to 49.00
Cupola cast	36.00 to 37.00
Heavy breakable cast	37.00 to 38.00
Cast iron car wheels	37.00 to 38.00
Malleable	45.00 to 46.00
No. 1 machinery cast	47.00 to 48.00

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$23.50 to $24.50
No. 2 hvy. melting	20.50 to 21.50
No. 1 dealer bundles	24.50 to 25.50
No. 2 bundles	16.00 to 17.00
Machine shop turn.	8.00 to 9.00
Shoveling turnings	10.00 to 11.00
Cast iron borings	10.00 to 11.00
Low phos. 18 in. and under	31.00 to 32.00
Rails, random length	33.00 to 34.00
Rails, 18 in. and under	42.00 to 43.00
No. 1 cupola cast	34.00 to 35.00
Heavy breakable cast	28.00 to 29.00
Drop broken cast	41.00 to 42.00

Youngstown

No. 1 hvy. melting	$29.00 to $30.00
No. 2 hvy. melting	21.00 to 22.00
No. 1 dealer bundles	29.00 to 30.00
No. 2 bundles	20.00 to 21.00
Machine shop turn.	13.00 to 14.00
Shoveling turnings	16.00 to 17.00
Low phos. plate	33.00 to 34.00

Cleveland

No. 1 hvy. melting	$25.50 to $26.50
No. 2 hvy. melting	17.00 to 18.00
No. 1 dealer bundles	25.50 to 26.50
No. 1 factory bundles	32.50 to 33.50
No. 2 bundles	16.50 to 17.50
No. 1 busheling	25.50 to 26.50
Machine shop turn.	10.00 to 11.00
Mixed bor. and turn.	13.00 to 14.00
Shoveling turnings	13.00 to 14.00
Cast iron borings	13.00 to 14.00
Cut structural & plates, 2 ft. & under	35.00 to 36.00
Low phos. punch'gs plate	26.50 to 27.50
Drop forge flashings	25.50 to 26.50
Foundry steel, 2 ft. & under	25.00 to 26.00
No. 1 RR hvy. melting	29.50 to 30.50
Rails 2 ft. and under	45.00 to 46.00
Rails 18 in. and under	46.00 to 47.00
Steel axle turnings	21.00 to 22.00
Railroad cast	44.00 to 45.00
No. 1 machinery cast	44.00 to 45.00
Stove plate	37.00 to 38.00
Malleable	44.00 to 45.00
Stainless	
18-8 bundles	165.00 to 170.00
18-8 turnings	60.00 to 70.00
430 bundles	70.00 to 75.00

Buffalo

No. 1 hvy. melting	$23.00 to $24.00
No. 2 hvy. melting	20.00 to 21.00
No. 1 busheling	23.00 to 24.00
No. 1 dealer bundles	23.00 to 24.00
No. 2 bundles	17.00 to 18.00
Machine shop turn.	9.00 to 10.00
Mixed bor. and turn.	10.00 to 11.00
Shoveling turnings	13.00 to 14.00
Cast iron borings	11.00 to 12.00
Low phos. plate	31.00 to 32.00
Structurals and plate, 2 ft. and under	33.00 to 34.00
Scrap rails, random lgth	32.00 to 33.00
Rails 2 ft. and under	42.00 to 43.00
No. 1 machinery cast	42.00 to 43.00
No. 1 cupola cast	36.00 to 37.00

St. Louis

No. 1 hvy. melting	$27.00 to $28.00
No. 2 hvy. melting	25.00 to 26.00
Foundry steel, 2 ft.	27.00 to 28.00
No. 1 dealer bundles	28.00 to 29.00
No. 2 bundles	18.00 to 19.00
Machine shop turn.	7.00 to 8.00
Shoveling turnings	9.00 to 10.00
Cast iron borings	16.00 to 17.00
No. 1 RR hvy. melting	30.00 to 31.00
Rails, random lengths	36.00 to 37.00
Rails, 18 in. and under	38.00 to 39.00
RR specialties	36.00 to 37.00
Cupola cast	38.00 to 39.00
Heavy breakable cast	31.00 to 32.00
Stove plate	33.00 to 34.00
Cast iron car wheels	33.00 to 34.00
Rerolling rails	47.00 to 48.00
Unstripped motor blocks	33.00 to 34.00

Birmingham

No. 1 hvy. melting	$29.00 to $30.00
No. 2 hvy. melting	24.00 to 25.00
No. 1 dealer bundles	29.00 to 30.00
No. 2 bundles	19.00 to 20.00
No. 1 busheling	31.00 to 32.00
Machine shop turn.	16.00 to 17.00
Shoveling turnings	18.00 to 19.00
Cast iron borings	9.00 to 10.00
Electric furnace bundles	32.00 to 33.00
Elec. furnace, 3 ft. & under	32.00 to 33.00
Bar crops and plate	37.00 to 38.00
Structural and plate, 2 ft.	36.00 to 37.00
No. 1 RR hvy. melting	32.00 to 33.00
Scrap rail, random lgth	37.00 to 38.00
Rails, 18 in. and under	44.00 to 45.00
Angles and splice bars	36.00 to 37.00
No. 1 cupola cast	44.00 to 45.00
Stove plate	44.00 to 45.00
Cast iron car wheels	33.00 to 34.00
Unstripped motor blocks	32.00 to 33.00

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$27.00 to $28.00
No. 2 hvy. melting	20.00 to 21.00
No. 2 dealer bundles	15.00 to 16.00
Machine shop turnings	2.00 to 3.00
Mixed bor. and turn.	3.00 to 4.00
Shoveling turnings	5.00 to 6.00
Clean cast. chem. borings	17.00 to 18.00
No. 1 machinery cast	36.00 to 37.00
Mixed yard cast	32.00 to 33.00
Heavy breakable cast	30.00 to 31.00
Stainless	
18-8 prepared solids	160.00 to 165.00
18-8 turnings	80.00 to 85.00
430 prepared solids	70.00 to 75.00
430 turnings	20.00 to 25.00

Detroit

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$23.00 to $24.00
No. 2 hvy. melting	20.00 to 21.00
No. 1 dealer bundles	27.00 to 28.00
No. 2 bundles	20.00 to 21.00
No. 1 busheling	23.00 to 24.00
Drop forge flashings	23.00 to 24.00
Machine shop turn.	8.00 to 9.00
Mixed bor. and turn.	11.00 to 12.00
Shoveling turnings	11.00 to 12.00
Cast iron borings	11.00 to 12.00
Heavy breakable cast	25.00 to 26.00
Mixed cupola cast	31.00 to 32.00
Automotive cast	36.00 to 37.00
Stainless	
18-8 bundles and solids	145.00 to 150.00
18-8 turnings	45.00 to 50.00
430 bundles and solids	50.00 to 55.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$23.00 to $24.00
No. 2 hvy. melting	18.00 to 19.00
No. 1 dealer bundles	23.00 to 24.00
No. 2 bundles	12.00 to 13.00
No. 1 busheling	23.00 to 24.00
Machine shop turn.	3.50 to 4.50
Shoveling turnings	7.00 to 8.00
Clean cast. chem. borings	11.00 to 12.00
No. 1 machinery cast	37.00 to 38.00
Mixed cupola cast	29.00 to 30.00
Heavy breakable cast	25.50 to 26.50

San Francisco

No. 1 hvy. melting	$32.00
No. 2 hvy. melting	29.00
No. 1 dealer bundles	$27.00 to 28.00
No. 2 bundles	18.00
Machine shop turn.	14.00
Cast iron borings	14.00
No. 1 cupola cast	46.00 to 48.00

Los Angeles

No. 1 hvy. melting	$29.00 to $30.00
No. 2 hvy. melting	26.00 to 27.00
No. 1 dealer bundles	24.00 to 25.00
No. 2 bundles	17.00
Machine shop turn.	12.00
Shoveling turnings	13.00
Cast iron borings	13.00
Elec. furnace 1 ft. and under (foundry)	42.00
No. 1 cupola cast	38.00 to 39.00

Seattle

No. 1 hvy. melting	$33.00
No. 2 hvy. melting	31.00
No. 2 bundles	21.00
No. 1 cupola cast	36.00
Mixed yard cast	31.00

Hamilton, Ont

Brokers buying prices per net ton on cars:

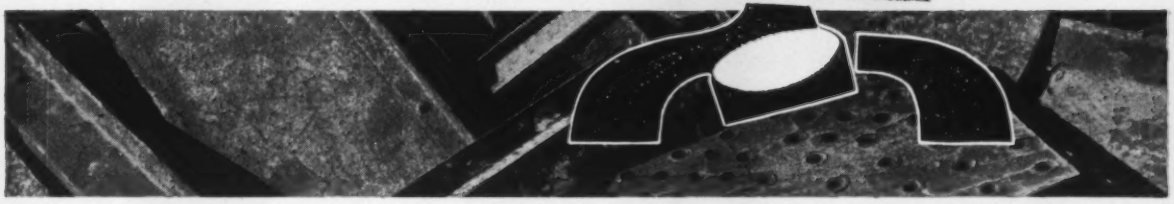
No. 1 hvy. melting	$24.00
No. 2 hvy. melting cut 3 ft. and under	20.50
No. 1 dealer bundles	24.00
No. 2 bundles	17.00
Mixed steel scrap	16.00
Bush., new fact, prep'd	23.00
Bush., new fact, unprep'd	18.00
Machine shop turn.	8.00
Short steel turn.	12.00
Mixed bor. and turn.	12.00
Cast scrap	30.00

Houston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$32.00
No. 2 hvy. melting	29.00
No. 2 bundles	20.50
Machine shop turn.	8.00
Shoveling turnings	11.00
Cut structural plate 2 ft. & under	$40.00 to 41.00
Unstripped motor blocks	26.00 to 27.00
Cupola cast	33.00 to 34.00
Heavy breakable cast	25.00 to 26.00

FOR
GUARANTEED
ANALYSIS
OF
STAINLESS
AND
ALLOY
STEEL SCRAP



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New World Markets Give Nickel a Lift

Gains in nickel consumption in Europe compensate for lagging markets in the steel industry.

As a result of the world market shift Europe now consumes more nickel than the U. S.

■ For the last few months nickel producers have been looking much happier than apparent market conditions would indicate.

The steel industry is by far the largest user of nickel. And with American steel production sagging, the domestic nickel market isn't at its best.

World Market Shifts—But there was a major geographic shift in the pattern of world nickel consumption in 1960.

The result: "Consumption of nickel by the Free World will set a new high annual record in 1960, exceeding 500 million lb, an increase of over 15 pct above that of 1959," says International Nickel Co. chairman Henry S. Wingate.

The shift: Europe is now consuming more nickel than the U. S.—43.5 pct of total world consumption to 43 pct for the U. S.

"A substantial increase in the use of nickel in Europe was the main factor to the Free World's record breaking consumption," reported Inco's chief executive. He added: "Differing from the pattern of past years, total consumption in North America, which for many years has been the world's largest market for nickel, was below that of the balance of the Free World."

The Big Markets—All markets for nickel advanced during the year. The greatest gains: Use of nickel in stainless steels, and in electroplating, primarily for the auto industry.

For 1961, the outlook continues bright. For one thing, there will likely be continued plentiful supply. "Nickel producers of the Free World (Inco is by far the largest) continued to increase their production capacities in 1960," says Mr. Wingate. "And it is estimated that before the end of 1961, the total nickel production capacity of the Free World, exclusive of Cuban sources, will approach 500 million lb annually."

This is likely to be needed before long. Mr. Wingate concludes, "In spite of the slowness in industrial pickup in the United States, Free World consumption of nickel will again be at a very high level in 1961. The economies and technological advantages which nickel can provide should result in the Free World nickel consumption reaching new peaks in the years ahead."

Titanium

Things are starting to look up for titanium. Mill product shipments in 1960 were about 10 million lb, almost 50 pct better than 1959, says T. W. Lippert, director of marketing, Titanium Metals Corp. of America.

In 1956, shipments were about 10.1 million lb; in 1957, 11.3 million lb. Then, cutbacks in defense buying sent titanium downward until, by the end of the record year 1957, production was at the rate of only 4 pct of capacity.

What is causing the renewed surge? Better price picture for one, says Mr. Lippert. TMCA composite price index, based on commercially pure sheet and strip, and alloy bar and billet, now stands at $6.97 per lb. In 1956 it was $11.97 per lb.

Copper

U. S. brass mills are gearing up for the "hard sell" in 1961, says T. E. Veltfort, managing director, Copper and Brass Research Assn.

The reason: Their shipments dropped about 16 pct in 1960.

"This has been due in great part," says Mr. Veltfort, "to the liquidation of inventories by users, and by a disappointing showing in such brass mill product consuming fields as residential building, electrical appliances, and industrial components."

Tin prices: Dec. 20—101.375; Dec. 21—101.25; Dec. 22—101.25; Dec. 23—101.125; Dec. 27—101.00; Dec. 28—100.875; Dec. 29—100.75; Dec. 30—100.625*.

* Estimate.

Price Date Change — Beginning with this issue, prices will be effective as of Mondays—rather than Tuesdays — unless otherwise indicated. This change is caused by a 148-pct increase in circulation of The IRON AGE during the past 10 years.—Ed.

Primary Prices

(cents per lb)	current price	last price	date of change
Aluminum ingot	26.00	24.70	12/17/59
Copper (E)	30.00	33.00	10/11/60
Copper (CS)	30.00	31.00	10/13/60
Copper (L)	30.00	33.00	10/13/60
Lead, St. L.	10.80	11.80	12/13/60
Lead, N. Y.	11.00	12.00	12/13/60
Magnesium ingot	38.00	34.50	8/13/58
Magnesium pig	35.25	33.75	8/13/58
Nickel	74.00	64.50	12/8/58
Titanium sponge	156-160	182-182	8/1/59
Zinc, E. St. L.	12.50	13.00	12/13/60
Zinc, N. Y.	13.00	13.50	12/13/60

ALUMINUM: 99% ingot COPPER: (E) = electrolytic, (CS) = custom smelters, electrolytic. (L) = lake. LEAD: common grade. MAGNESIUM: 99.8% pig Velasco, Tex. NICKEL: Port Colborne, Canada. ZINC: prime western. Other primary prices, pg. 281.

MILL PRODUCTS

(Cents per lb unless otherwise noted)

ALUMINUM

(Base 30,000 lb, f.o.b. customer's plant)

Flat Sheet (Mill Finish and Plate)

("F" temper except 6061-0)

Alloy	.030-.038	.048-.061	.077-.096	.136-.250
1100, 3003	48.4	47.4	46.4	45.4
5052	55.8	53.0	50.8	49.2
6061-0	53.0	50.3	48.4	47.0

Extruded Solid Shapes

Factor	6063 T-5	6062 T-6
1-17	45.3-46.8	54.0-61.8
18-32	45.8-47.5	58.6-81.5
33-38	49.5-52.2	85.1-96.6
39-44	59.8-63.6	102.0-124.0

Screw Machine Stock—2011-T-3

Size"	7/32-5/16	11/32-23/32	3/4-1 1/16	1 3/32-1 3/8
Price	60.0	59.2	57.7	55.3

Roofing Sheet, Corrugated

(Per sheet, 26" wide base, 16,000 lb)

Length"→	72	96	120	144
.019 gage	$1.506	$2.013	$2.515	$3.017

MAGNESIUM

(F.o.b. shipping pt., carload frt. allowed)

Sheet and Plate

Type↓ Gage→	.250 3.00	.250-2.00	.188	.081	.032
AZ31B Stand. Grade	.....	67.9	69.0	77.9	103.1
AZ31B Spec.	.....	93.3	96.9	108.7	171.3
Tread Plate	.....	70.6	71.7	.....	.....
Tooling Plate	73.0	.....	.....	.....	.....

Extruded Shapes

factor→	6-8	12-14	24-26	36-38
Comm. Grade. (AZ31C)	65.3	65.3	66.1	71.5
Spec. Grade... (AZ31B)	84.6	85.7	90.6	104.2

Alloy Ingot

AZ91B (Die Casting) ..... 37.25 (delivered)
AZ63A, AZ92A, AZ91C (Sand Casting) 40.75 (Velasco, Tex.)

NICKEL, MONEL, INCONEL

(Base prices f.o.b. mill)

	"A" Nickel	Monel	Inconel
Sheet, CR	138	120	138
Strip, CR	124	108	138
Rod, bar, HR	107	89	109
Angles, HR	107	89	109
Plates, HR	130	110	126
Seamless tube	157	129	200
Shot, blocks	...	87	...

COPPER, BRASS, BRONZE

(Freight included in 5000 lbs)

	Sheet	Wire	Rod	Tube
Copper	55.13	.....	52.36	56.32
Brass, Yellow	49.27	49.56	49.21	53.43
Brass, Low	51.75	52.04	51.69	55.81
Brass, Red	52.62	52.91	52.56	56.68
Brass, Naval	54.08	60.39	47.89	58.24
Muntz Metal	52.14	.....	47.45	.....
Comm. Bz.	54.03	54.32	53.97	57.84
Mang. Bz.	57.82	.....	51.42	.....
Phos. Bz. 5%	75.70	75.70	76.20	77.63

Free Cutting Brass Rod 34.88

TITANIUM

(Base Prices f.o.b. mill)

Sheet and strip, commercially pure, $6.75-$13.00; alloy, $13.40-$17.00. Plate, HR, commercially pure, $5.25-$9.00; alloy, $8.00-$10.00. Wire, rolled and/or drawn, commercially pure, $5.55-$6.05; alloy, $5.55-$9.00; bar, HR or forged, commercially pure, $4.00-$4.50; alloy, $4.00-$6.25; billets, HR, commercially pure, $3.20-$3.70; alloy, $3.20-$4.75.

PRIMARY METAL

(Cents per lb unless otherwise noted)

Antimony, American, Laredo, Tex.. 29.50
Beryllium Aluminum 5% Be, Dollars per lb contained Be $65.00
Beryllium copper, per lb conta'd Be. $43.00
Beryllium 97% lump or beads, f.o.b. Cleveland, Reading $70.00
Bismuth, ton lots ..... $ 2.25
Cadmium, del'd ..... $ 1.50
Calcium, 99.9% small lots ..... $ 4.55
Chromium, 99.8% metallic base.... $ 1.31
Cobalt, 97-99% (per lb) .... $1.50 to $ 1.57
Germanium, per gm, f.o.b. Miami, Okla., refined ..... $29.95 to $36.95
Gold, U. S. Treas., per troy oz..... $35.00
Indium, 99.9% dollars per troy oz.. $ 2.25
Iridium, dollars per troy oz..... $75 to $85
Lithium, 98% ..... $9.00 to $12.00
Magnesium sticks, 10,000 lb. 57.00
Mercury, dollars per 76-lb flask f.o.b. New York ..... $208 to $210
Nickel oxide sinter at Buffalo, N. Y., or other U. S. points of entry, contained nickel 69.60
Palladium, dollars per troy oz... $24 to $26
Platinum, dollars per troy oz... $82 to $85
Rhodium ..... $137 to $140
Silver ingots (¢ per troy oz.)..... 91.375
Thorium, per kg $43.00
Vanadium ..... $ 3.65
Zirconium sponge ..... $ 5.00

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5 ingot
- No. 115 ..... 28.25
- No. 120 ..... 27.25
- No. 123 ..... 26.25

80-10-10 ingot
- No. 305 ..... 32.75
- No. 315 ..... 30.50

88-10-2 ingot
- No. 210 ..... 40.50
- No. 215 ..... 37.25
- No. 245 ..... 32.50

Yellow Ingot
- No. 405 ..... 23.50

Manganese bronze
- No. 421 ..... 27.50

Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-silicon alloys
- 0.30 copper max. 24.25-24.50
- 0.60 copper max. 24.00-24.25

Piston alloys (No. 132 type)..26.00-27.00
No. 12 alum. (No. 2 grade)...22.75-23.25
108 alloy 23.25-23.75
195 alloy 25.75-26.75
13 alloy (0.60 copper max.)...24.00-24.25
AXS-679 (1 pct zinc) 23.00-24.00

(Effective Dec. 30, 1960)

Steel deoxidizing aluminum notch bar granulated or shot

Grade 1—95-87½% 23.75-24.75
Grade 2—92-95% 22.50-23.50
Grade 3—90-92% 21.50-22.50
Grade 4—85-90% 21.00-22.00

SCRAP METAL

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	26	25¼
Yellow brass	20⅜	18⅜
Red brass	23¼	22½
Comm. bronze	24	23¼
Mang. bronze	19⅛	18⅜
Free cutting rod ends.	19⅝	

Customs Smelters Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire 24½
No. 2 copper wire 23
Light copper 20
*Refining brass 21
Copper bearing material 20
*Dry copper content.

Ingot Makers Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire 24¼
No. 2 copper wire 23
Light copper 21
No. 1 composition 20¼
No. 1 cop. turnings 19¾
Hvy. yellow brass solids 15½
Brass pipe 14½
Radiators 16½

Aluminum

Mixed old cast. ..... 12½—13
Mixed new clips ..... 14½—15
Mixed turnings, dry ..... 13 —14

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Copper and Brass

No. 1 copper wire	22	—22½
No. 2 copper wire	20	—20½
Light copper	18	—18½
Auto radiators (unsweated)	12½	—13
No. 1 composition	17½	—18
No. 1 composition turnings	16	—17
Cocks and faucets	13	—13½
Clean heavy yellow brass	12¼	—12½
Brass pipe	13½	—14
New soft brass clippings	13½	—14
No. 1 brass rod turnings	12½	—13

Aluminum

Alum. pistons and struts	6½	— 7
Aluminum crankcase	8½	— 9
1100 (Ss) aluminum clippings	11½	—12
Old sheet and utensils	8½	— 9
Borings and turnings	4½	— 5
Industrial castings	9	— 9½
2020 (24s) clippings	10	—10½

Zinc

New zinc clippings	7	— 7¼
Old zinc	4	— 4½
Zinc routings	3	— 3¼
Old die cast scrap	2	— 2¼

Nickel and Monel

Pure nickel clippings	52-54
Clean nickel turnings	40
Nickel anodes	52-54
Nickel rod ends	52-54
New Monel clippings	23-23.50
Clean Monel turnings	16.50-17
Old sheet Monel	22-23
Nickel silver clippings, mixed.	18
Nickel silver turnings, mixed.	15

Lead

Soft scrap lead	7¾	— 8
Battery plates (dry)	3	— 3¼
Batteries, acid free	2	— 2¼

Miscellaneous

Block tin	75	—77
No. 1 pewter	57.50	—58
Auto babbitt	43	—44
Mixed common babbitt	10¼	—10¾
Solder joints	14½	—15
Siphon tops	41	
Small foundry type	9¾	—10¼
Monotype	9¾	—10¼
Lino. and stereotype	8¾	— 9
Electrotype	7½	— 7¾
Hand picked type shells	5¼	— 5¾
Lino. and stereo. dross	2¼	— 2¾
Electro dross	2¼	— 2¾

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BILLETS, BLOOMS, SLABS			PIL-ING	SHAPES, STRUCTURALS			STRIP					
		Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton	Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide-Flange	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot-rolled	Alloy Cold-rolled
EAST	Bethlehem, Pa.			$119.00 *B3*		5.55 *B3*	8.10 *B3*	5.55 *B5*						
	Buffalo, N. Y.	$80.00 *R3, B3*	$99.50 *R3, B3*	$119.00 *R3, B3*	6.50 *B3*	5.55 *B3*	8.10 *B3*	5.55 *B3*	5.10 *B3,*	7.425 *S10, R7*	7.575 *B3*			
	Phila., Pa.									7.875 *P15*				
	Harrison, N. J.													15.55 *C11*
	Conshohocken, Pa.		$104.50 *A2*	$126.00 *A2*					5.15 *A2*		7.575 *A2*			
	New Bedford, Mass.									7.875 *R6*				
	Johnstown, Pa.	$80.00 *B3*	$99.50 *B3*	$119.00 *B3*		5.55 *B3*	8.10 *B3*							
	Boston, Mass.									7.975 *T8*				15.90 *T8*
	New Haven, Conn.									7.875 *D1*				
	Baltimore, Md.									7.425 *T8*				15.90 *T8*
	Phoenixville, Pa.					5.55 *P2*		5.55 *P2*						
	Sparrows Pt., Md.								5.10 *B3*		7.575 *B3*			
	New Britain, Wallingford, Conn.			$119.00 *N8*						7.875 *W1,S7*				
	Pawtucket, R. I. Worcester, Mass.									7.975 *N7, A5*				15.90 *N7* 15.70 *T8*
MIDDLE WEST	Alton, Ill.								5.30 *L1*					
	Ashland, Ky.								5.10 *A7*		7.575 *A7*			
	Canton-Massillon, Dover, Ohio		$102.00 *R3*	$119.00 *R3, T5*						7.425 *G4*		10.80 *G4*		
	Chicago, Franklin Park, Evanston, Ill.	$80.00 *U1, R3*	$99.50 *U1, R3,W8*	$119.00 *U1, R3,W8*	6.50 *U1*	5.50 *U1, W8,P13*	8.05 *U1, Y1,W8*	5.50 *U1*	5.10 *W8, N4,A1*	7.525 *A1,T8, M8* 7.525* *M8*	7.575 *W8*		8.40 *W8, S9,13*	15.55 *A1, S9,G4,T8*
	Cleveland, Ohio									7.425 *A5,J3*		10.75 *A5*	8.40 *J3*	15.60 *N7*
	Detroit, Mich.			$119.00 *R5*					5.10 *G3, M2*	7.425 *M2, S1, D1, P11, B9*	7.575 *G3*	10.80 *S1*		
	Anderson, Ind.									7.425 *G4*				
	Gary, Ind. Harbor, Indiana	$80.00 *U1*	$99.50 *U1*	$119.00 *U1, Y1*		5.50 *U1, I3*	8.05 *U1, J3*	5.50 *I3*	5.10 *U1, I3,Y1*	7.425 *Y1*	7.575 *U1, I3,Y1*	10.90 *Y1*	8.40 *U1, Y1*	
	Sterling, Ill.	$80.00 *N4*				5.50 *N4*	7.75 *N4*	5.50 *N4*	5.20 *N4*					
	Indianapolis, Ind.									7.575 *R5*				15.70 *R5*
	Newport, Ky.								5.10 *A9*				8.40 *A9*	
	Niles, Warren, Ohio Sharon, Pa.		$99.50 *S1, C10*	$119.00 *C10,S1*					5.10 *R3, S1*	7.425 *R3, T4,S1*	7.575 *R3, S1*	10.80 *R3, S1*	8.40 *S1*	15.55 *S1*
	Owensboro, Ky.	$80.00 *G5*	$99.50 *G5*	$119.00 *G5*										
	Pittsburgh Midland Butler Aliquippa N. Castle McKeesport Pa.	$80.00 *U1, P6*	$99.50 *U1, C11,P6*	$119.00 *U1, C11,B7*	6.50 *U1*	5.50 *U1, J3*	8.05 *U1, J3*	5.50 *U1*	5.10 *P6*	7.425 *J3, B4, M10* 7.525 *E3*			8.40 *S9*	15.55 *S9* 15.60 *N7*
	Weirton, Wheeling, Follansbee, W. Va.				6.50 *U1, W3*	5.50 *W3*		5.50 *W3*	5.10 *W3*	7.425 *W5*	7.575 *W3*	10.80 *W3*		
	Youngstown, Ohio	$80.00 *R3*	$99.50 *Y1, C10*	$119.00 *Y1*			8.05 *Y1*		5.10 *U*	7.425 *Y1,R5*	7.575 *U1, Y1*	10.95 *Y1*	8.40 *U1, Y1*	15.55 *R5, Y1*
WEST	Fontana, Cal.	$90.50 *K1*	$109.00 *K1*	$140.00 *K1*		6.30 *K1*	8.85 *K1*	6.45 *K1*	5.825 *K1*	9.20 *K1*				
	Geneva, Utah		$99.50 *C7*			5.50 *C7*	8.05 *C7*							
	Kansas City, Mo.					5.60 *S2*	8.15 *S2*						8.65 *S2*	
	Los Angeles, Torrance, Cal.		$109.00 *B2*	$139.00 *B2*		6.20 *C7, B2*	8.75 *B2*		5.85 *C7, B2*	9.30 *C1,R5*			9.60 *B2*	17.75 *J3*
	Minnequa, Colo.					5.80 *C6*			6.20 *C6*	9.375 *C6*				
	Portland, Ore.					6.25 *O2*								
	San Francisco, Niles, Pittsburg, Cal.		$109.00 *B2*			6.15 *B2*	8.70 *B2*		5.85 *C7, B2*					
	Seattle, Wash.		$109.00 *B2*	$140.00 *B2*		6.25 *B2*	8.80 *B2*		6.10 *B2*					
SOUTH	Atlanta, Ga.					5.70 *A8*			5.10 *A8*					
	Fairfield, City, Ala. Birmingham, Ala.	$80.00 *T2*	$99.50 *T2*			5.50 *T2 R3,C16*	8.05 *T2*		5.10 *T2, R3,C16*		7.575 *T2*			
	Houston, Lone Star, Texas		$104.50 *S2*	$124.00 *S2*		5.60 *S2*	8.15 *S2*						8.65 *S2*	

* Electro-galvanized-plus galvanizing extras.

(Effective Dec. 30, 1960)

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		SHEETS								WIRE ROD	TINPLATE†		
		Hot-rolled *18* ga. & hvyr.	Cold-rolled	Galvanized (Hot-dipped)	Enameling	Long Terne	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.		Cokes* *1.25*-lb. base box	Electro** *0.25*-lb. base box	Thin *0.25* lb. coating in coils
EAST	Buffalo, N. Y.	5.10 *B3*	6.275 *B3*				7.525 *B3*	9.275 *B3*		6.40 *W6*	† Special coated mfg. tarne deduct 35¢ from 1.25-lb. coke base box price 0.75 lb./0.25 lb. add 55¢. Can-making quality BLACKPLATE 55 to 128 lb. deduct $2.20 from 1.25 lb. coke base box. * COKES: 1.50-lb. add 25¢. **ELECTRO: 0.50-lb. add 25¢; 0.75-lb. add 65¢; 1.00-lb. add $1.00. Differential 1.00 lb./0.25 lb. add 65¢.		Prices are for .50 lb. base box for .45 lb. deduct 15¢; for .55 lb. add 15¢; for .60 lb. add 30¢.
	Claymont, Del.												
	Coatesville, Pa.												
	Conshohocken, Pa.	5.15 *A2*	6.325 *A2*				7.575 *A2*						
	Harrisburg, Pa.												
	Hartford, Conn.												
	Johnstown, Pa.									6.40 *B3*			
	Fairless, Pa.	5.15 *U1*	6.325 *U1*				7.575 *U1*	9.325 *U1*			$10.50 *U1*	$9.20 *U1*	$6.35 *U1*
	New Haven, Conn.												
	Phoenixville, Pa.												
	Sparrows Pt., Md.	5.10 *B3*	6.275 *B3*	6.875 *B3*	6.775 *B3*		7.525 *B3*	9.275 *B3*	10.025 *B3*	6.50 *B3*	$10.40 *B3*	$9.10 *B3*	6.25 *B3*
	Worcester, Mass.									6.70 *A5*			
MIDDLE WEST	Alton, Ill.									6.60 *L1*			
	Ashland, Ky.	5.10 *A7*		6.875 *A7*	6.775 *A7*		7.525 *A7*						
	Canton-Massillon, Dover, Ohio			6.875 *R1, R3*									
	Chicago, Joliet, Ill.	5.10 *W8, A1*					7.525 *U1, W8*			6.40 *A5, R3, W8*			
	Sterling, Ill.									6.50 *N4, K2*			
	Cleveland, Ohio	5.10 *R3, J3*	6.275 *R3, J3*	7.65 *R3**	6.775 *R3*		7.525 *R3, J3*	9.275 *R3, J3*		6.40 *A5*			
	Detroit, Mich.	5.10 *G3, M2*	6.275 *G3, M2*				7.525 *G3*	9.275 *G3*					
	Newport, Ky.	5.10 *A9*	6.275 *A9*										
	Gary, Ind. Harbor, Indiana	5.10 *U1, I3, Y1*	6.275 *U1, I3, Y1*	6.875 *U1, I3*	6.775 *U1, I3, Y1*	7.225 *U1*	7.525 *U1, Y1, I3*	9.275 *U1, Y1*		6.40 *Y1*	$10.40 *U1, Y1*	$9.10 *I3, U1, Y1*	$6.25 *U1*
	Granite City, Ill.	5.20 *G2*	6.375 *G2*	6.975 *G2*								$9.20 *G2*	
	Kokomo, Ind.			6.975 *C9*						6.50 *C9*			
	Mansfield, Ohio	5.10 *E2*	6.275 *E2*			7.225 *E2*							
	Middletown, Ohio		6.275 *A7*	6.875 *A7*	6.775 *A7*	7.225 *A7*							
	Niles, Warren, Ohio Sharon, Pa.	5.10 *R3, S1*	6.275 *R3*	6.875 *R3* 7.65 *R3**	6.775 *S1*	7.225 *S1*†† *R3*	7.525 *R3, S1*	9.275 *R3*				$9.10 *R3*	
	Pittsburgh, Midland, Butler, Aliquippa, McKeesport Pa.	5.10 *U1, J3, P6*	6.275 *U1, J3, P6*	6.875 *U1, J3* 7.50 *E3**	6.775 *U1*		7.525 *U1, J3*	9.275 *U1, J3*	10.025 *U1, J3*	6.40 *A5, J3, P6*	$10.40 *U1, J3*	$9.10 *U1, J3*	$6.25 *U1*
	Portsmouth, Ohio	5.10 *P7*	6.275 *P7*							6.40 *P7*			
	Weirton, Wheeling, Follansbee, W. Va.	5.10 *W3, W5*	6.275 *W3, F3, W5*	6.875 *W3, W5* 7.50 *W3**		7.225 *W3, W5*	7.525 *W3*	9.275 *W3*			$10.40 *W5, W3*	$9.10 *W5, W3*	
	Youngstown, Ohio	5.10 *U1, Y1*	6.275 *Y1*		6.775 *Y1*		7.525 *Y1*	9.275 *Y1*		6.40 *Y1*			
WEST	Fontana, Cal.	5.825 *K1*	7.40 *K1*				8.25 *K1*	10.40 *K1*			$11.05 *K1*	$9.75 *K1*	
	Geneva, Utah	5.20 *C7*											
	Kansas City, Mo.									6.65 *S2*			
	Los Angeles, Torrance, Cal.									7.20 *B2*			
	Minnequa, Colo.									6.65 *C6*			
	San Francisco, Niles, Pittsburg, Cal.	5.80 *C7*	7.225 *C7*	7.625 *C7*						7.20 *C7*	$11.05 *C7*	$9.75 *C7*	
SOUTH	Atlanta, Ga.												
	Fairfield, Ala. Alabama City, Ala.	5.10 *T2, R3*	6.275 *T2, R3*	6.875 *T2, R3*	6.775 *T2*					6.40 *T2, R3*	$10.50 *T2*	$9.20 *T2*	$6.35 *T2*
	Houston, Texas									6.65 *S2*			

Holloware Enameling
29 ga.—*7.85 U1* at Gary; Pittsburgh: *J3* at Aliquippa; *W5* at Yorkville; *Y1* at Indiana Harbor; *W5* at Wheeling; *7.95 G2* at Granite City.

* Electrogalvanized sheets.

(Effective Dec. 30, 1960)

†† 7.425 at Sharon; Niles is 7.225.

IRON AGE

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BARS						PLATES				WIRE
		Carbon† Steel	Reinforcing	Cold Finished	Alloy Hot-rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfr'a. Bright
EAST	Bethlehem, Pa.				6.725 *B3*	9.025 *B3*	8.30 *B3*					
	Buffalo, N. Y.	5.675 *R3,B3*	5.675 *R3,B3*	7.70 *B5*	6.725 *B3,R3*	9.025 *B3,B5*	8.30 *B3*	5.30 *B3*				8.00 *W6*
	Claymont, Del.							5.30 *P2*		7.50 *P2*	7.95 *P2*	
	Coatesville, Pa.							5.30 *L4*		7.50 *L4*	7.95 *L4*	
	Conshohocken, Pa.							5.30 *A2*	6.375 *A2*	7.50 *A2*	7.95 *A2*	
	Harrisburg, Pa.							5.30 *P2*	6.375 *P2*			
	Milton, Pa.	5.825 *M7*	5.825 *M7*									
	Hartford, Conn.			8.15 *R3*		9.325 *R3*						
	Johnstown, Pa.	5.675 *B3*	5.675 *B3*		6.725 *B3*		8.30 *B3*	5.30 *B3*		7.50 *B3*	7.95 *B3*	8.00 *B3*
	Steelton, Pa.		5.675 *B3*									
	Fairless, Pa.	5.825 *U1*	5.825 *U1*									
	Newark, Camden, N. J.			8.10 *W10, P10*		9.20 *W10, P10*						
	Bridgeport, Putnam, Willimantic, Conn.			8.20 *W10* 8.15 *J3*	6.80 *N8*	9.175 *N8*						
	Sparrows Pt., Md.		5.675 *B3*					5.30 *B3*		7.50 *B3*	7.95 *B3*	8.10 *B3*
	Palmer, Worcester, Readville, Mansfield, Mass.			8.20 *B5, C14*		9.325 *A5,B5*						8.30 *A5, W6*
	Spring City, Pa.			8.10 *K4*		9.20 *K4*						
MIDDLE WEST	Alton, Ill.	5.875 *L1*										8.20 *L1*
	Ashland, Newport, Ky.							5.30 *A7, A9*		7.50 *A9*	7.95 *A7*	
	Canton, Massillon, Mansfield, Ohio	6.15* *R3*		7.65 *R3,R2*	6.725 *R3, T5*	9.025 *R3,R2, T5*		5.30 *E2*				
	Chicago, Joliet, Waukegan, Madison, Harvey, Ill.	5.675 *U1,R3, W8,N4,P13*	5.675 *U1,R3, N4,P13,W8* 5.875 *L1*	7.65 *A5, W10,W8, B5,L2,N9*	6.725 *U1,R3, W8*	9.025 *A5, W10,W8, L2,N8,B5*	8.30 *U1,W8, R3*	5.30 *U1,A1, W8,13*	6.375 *U1*	7.50 *U1, W8*	7.95 *U1, W8*	8.00 *A5,R3, W8,N4, K2,W7*
	Cleveland, Elyria, Ohio	5.675 *R3*	5.675 *R3*	7.65 *A5,C13, C18*		9.025 *A5, C13,C18*	8.30 *R3*	5.30 *R3,J3*	6.375 *J3*		7.95 *R3,J3*	8.00 *A5, C13,C18*
	Detroit, Plymouth, Mich.	5.675 *G3*	5.675 *G3*	7.90 *P3* 7.85 *P8B5H2* 7.65 *R5*	6.725 *R5,G3*	9.025 *R5,P8* 9.225 *B5,P3*	8.30 *G3*	5.30 *G3*		7.50 *G3*	7.95 *G3*	
	Duluth, Minn.											8.00 *A5*
	Gary, Ind. Harbor, Crawfordsville, Hammond, Ind.	5.675 *U1,I3, Y1*	5.675 *U1,I3, Y1*	7.65 *R3,J3*	6.725 *U1,I3, Y1*	9.025 *R3,M4*	8.30 *U1,Y1*	5.30 *U1,I3, Y1*	6.375 *J3, I1*	7.50 *U1, Y1*	7.95 *U1, Y1,I3*	8.10 *M4*
	Granite City, Ill.							5.40 *G2*				
	Kokomo, Ind.		5.775 *C9*									8.10 *C9*
	Sterling, Ill.	5.775 *N4*	5.775 *N4*				7.925 *N4*	5.30 *N4*			7.625 *N4*	8.10 *K2*
	Niles, Warren, Ohio Sharon, Pa.			7.65 *C10*	6.725 *C10,*	9.025 *C10*		5.30 *R3,S1*		7.50 *S1*	7.95 *R3, S1*	
	Owensboro, Ky.	5.675 *G5*			6.725 *G5*							
	Pittsburgh, Midland, Donora, Aliquippa, Pa.	5.675 *U1,J3*	5.675 *U1,J3*	7.65 *A5,B4, R3,J3,C11, W10,S9,C8, M9*	6.725 *U1,J3, C11,B7*	9.025 *A5, W10,R3,S9, C11,C8,M9*	8.30 *U1,J3*	5.30 *U1,J3*	6.375 *U1,J3*	7.50 *U1, J3,B7*	7.95 *U1, J3,B7*	8.00 *A5, J3,P6*
	Portsmouth, Ohio											8.00 *P7*
	Youngstown, Steubenville, O.	5.675 *U1,R3, Y1*	5.675 *U1,R3, Y1*	7.65 *A1,Y1, F2*	6.725 *U1,Y1*	9.025 *Y1,F2*	8.30 *U1,Y1*	5.30 *U1,W5, R3,Y1*		7.50 *Y1*	7.95 *U1,Y1*	8.00 *Y1*
WEST	Emeryville, Fontana, Cal.	6.425 *J5* 6.375 *K1*	6.425 *J5* 6.375 *K1*		7.775 *K1*		9.00 *K1*	6.10 *K1*		8.30 *K1*	8.75 *K1*	
	Geneva, Utah							5.30 *C7*			7.95 *C7*	
	Kansas City, Mo.	5.925 *S2*	5.675 *S2*		6.975 *S2*		8.55 *S2*					8.25 *S2*
	Los Angeles, Torrance, Cal.	6.375 *C7,B2*	6.375 *C7,B2*	9.10 *R3,P14, S12*	7.775 *B2*	11.00 *P14, B5*	9.00 *B2*					8.95 *B2*
	Minnequa, Colo.	6.125 *C6*	6.125 *C6*					6.15 *C6*				8.25 *C6*
	Portland, Ore.	6.425 *O2*	6.425 *O2*									
	San Francisco, Niles, Pittsburg, Cal.	6.375 *C7* 6.425 *B2*	6.375 *C7* 6.425 *B2*				9.05 *B2*					8.95 *C7,C6*
	Seattle, Wash.	6.425 *B2,N6, A10*	6.425 *B2,A10*		7.825 *B2*		9.05 *B2*	6.20 *B2*		8.40 *B2*	8.85 *B2*	
SOUTH	Atlanta, Ga.	5.875 *A8*	5.25 *A8*									8.00 *A8*
	Fairfield City, Ala. Birmingham, Ala.	5.675 *T2,R3, C16*	5.675 *T2,R3, C16*	8.25 *C16*			8.30 *T2*	5.30 *T2,R3*			7.95 *T2*	8.00 *T2,R3*
	Houston, Ft. Worth, Lone Star, Texas, Sand Springs, Okla.	5.925 *S2*	5.675 *S2*		6.975 *S2*		8.55 *S2*	5.40 *S2*		7.60 *S2*	8.05 *S2*	8.25 *S2*

† Merchant Quality—Special Quality 35¢ higher. (Effective Dec. 30, 1960) * Special Quality.

STEEL PRICES

Key to Steel Producers

With Principal Offices

A1 Acme Steel Co., Chicago
A2 Alan Wood Steel Co., Conshohocken, Pa.
A3 Allegheny Ludlum Steel Corp., Pittsburgh
A4 American Cladmetals Co., Carnegie, Pa.
A5 American Steel & Wire Div., Cleveland
A6 Angel Nail & Chaplet Co., Cleveland
A7 Armco Steel Corp., Middletown, Ohio
A8 Atlantic Steel Co., Atlanta, Ga.
A9 Acme-Newport Steel Co., Newport, Ky.
A10 Alaska Steel Mills, Inc., Seattle, Wash.

B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2 Bethlehem Steel Co., Pacific Coast Div.
B3 Bethlehem Steel Co., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin, Inc., Harvey, Ill.
B6 Brooke Plant, Wickwire-Spencer Steel Div., Birdsboro, Pa.
B7 A. M. Byers, Pittsburgh
B8 Braeburn Alloy Steel Corp., Braeburn, Pa.
B9 Barry Universal Corp., Detroit, Mich.

C1 Calstrip Steel Corp., Los Angeles
C2 Carpenter Steel Co., Reading, Pa.
C6 Colorado Fuel & Iron Corp., Denver
C7 Columbia Geneva Steel Div., San Francisco
C8 Columbia Steel & Shafting Co., Pittsburgh
C9 Continental Steel Corp., Kokomo, Ind.
C10 Copperweld Steel Co., Pittsburgh, Pa.
C11 Crucible Steel Co. of America, Pittsburgh
C13 Cuyahoga Steel & Wire Co., Cleveland
C14 Compressed Steel Shafting Co., Readville, Mass.
C15 G. O. Carlson, Inc., Thorndale, Pa.
C16 Connors Steel Div., Birmingham
C18 Cold Drawn Steel Plant, Western Automatic Machine Screw Co., Elyria, O.

D1 Detroit Steel Corp., Detroit
D2 Driver, Wilbur B., Co., Newark, N. J.
D3 Driver Harris Co., Harrison, N. J.
D4 Dickson Weatherproof Nail Co., Evanston, Ill.

E1 Eastern Stainless Steel Corp., Baltimore
E2 Empire-Reeves Steel Corp., Mansfield, O.
E3 Enamel Products & Plating Co., McKeesport, Pa.

F1 Firth Sterling, Inc., McKeesport, Pa.
F2 Fitzsimons Steel Corp., Youngstown
F3 Follansbee Steel Corp., Follansbee, W. Va.

G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Corp., Detroit
G4 Greer Steel Co., Dover, O.
G5 Green River Steel Corp., Owenboro, Ky.

H1 Hanna Furnace Corp., Detroit
H2 Hercules Drawn Steel Corp., Toledo, O.

I2 Ingersoll Steel Div., New Castle, Ind.
I3 Inland Steel Co., Chicago, Ill.
I4 Interlake Iron Corp., Cleveland

J1 Jackson Iron & Steel Co., Jackson, O.
J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago
J5 Judson Steel Corp., Emeryville, Calif.

K1 Kaiser Steel Corp., Fontana, Calif.
K2 Keystone Steel & Wire Co., Peoria
K4 Keystone Drawn Steel Co., Spring City, Pa.

L1 Laclede Steel Co., St. Louis
L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.

M1 Mahoning Valley Steel Co., Niles, O.
M2 McLouth Steel Corp., Detroit
M3 Mercer Tube & Mfg. Co., Sharon, Pa.
M4 Mid States Steel & Wire Co., Crawfordsville, Ind.
M7 Milton Steel Products Div., Milton, Pa.
M8 Mill Strip Products Co., Evanston, Ill.
M9 Moltrup Steel Products Co., Beaver Falls, Pa.
M10 Mill Strip Products Co., of Pa., New Castle, Pa.

N1 National Supply Co., Pittsburgh
N2 National Tube Div., Pittsburgh
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N6 Northwest Steel Rolling Mills, Seattle
N7 Newman Crosby Steel Co., Pawtucket, R. I.
N8 Carpenter Steel of New England, Inc., Bridgeport, Conn.
N9 Nelson Steel & Wire Co.

O1 Oliver Iron & Steel Co., Pittsburgh
O2 Oregon Steel Mills, Portland

P1 Page Steel & Wire Div., Monessen, Pa.
P2 Phoenix Steel Corp., Phoenixville, Pa.
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
P4 Pittsburgh Coke & Chemical Co., Pittsburgh
P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Steel Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N. J.
P11 Production Steel Strip Corp., Detroit
P13 Phoenix Mfg. Co., Joliet, Ill.
P14 Pacific Tube Co.
P15 Philadelphia Steel and Wire Corp.

R1 Reeves Steel & Mfg. Div., Dover, O.
R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebling Sons Co., John A., Trenton, N. J.
R5 Jones & Laughlin Steel Corp., Stainless and Strip Div.
R6 Rodney Metals, Inc., New Bedford, Mass.
R7 Rome Strip Steel Co., Rome, N. Y.

S1 Sharon Steel Corp., Sharon, Pa.
S2 Sheffield Steel Div., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw and Steel Co., Fitchburg, Mass.
S5 Sweet's Steel Co., Williamsport, Pa.
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Div. of Copperweld Steel Co.
S10 Seneca Steel Service, Buffalo
S11 Southern Electric Steel Co., Birmingham
S12 Sierra Drawn Div., Bliss & Laughlin, Inc., Los Angeles, Calif.
S13 Seymour Mfg. Co., Seymour, Conn.
S14 Screw and Bolt Corp. of America, Pittsburgh, Pa.

T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T7 Texas Steel Co., Fort Worth
T8 Thompson Wire Co., Boston

U1 United States Steel Corp., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.
U3 Ulbrich Stainless Steels, Wallingford, Conn.
U4 U. S. Pipe & Foundry Co., Birmingham

W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago.
W8 Wisconsin Steel Div., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wyckoff Steel Co., Pittsburgh
W12 Wallace Barnes Steel Div., Bristol, Conn.

Y1 Youngstown Sheet & Tube Co., Youngstown, O.

STEEL SERVICE CENTER PRICES

Metropolitan Price, dollars per 100 lb.

Cities	City Delivery ‡ Charge	Sheets			Strip	Plates	Shapes	Bars		Alloy Bars			
		Hot-Rolled (18 ga. & hvr.)	Cold-Rolled (15 gage)	Galvanized (10 gage)††	Hot-Rolled		Standard Structure 1	Hot-Rolled (merchant)	Cold-Finished	Hot-Rolled 4615 As rolled	Hot-Rolled 4140 Annealed	Cold-Drawn 4615 As rolled	Cold-Drawn 4140 Annealed
Atlanta		9.37	10.61	11.83	10.85	9.73	9.94	9.53	13.24	.....	.....	.....	.....
Baltimore**	$.10	7.87	9.71	10.16	10.28	8.44	9.13	8.65	11.80	17.48	16.48	21.58	20.83
Birmingham**		8.46	10.20	10.69	9.45	8.41	8.47	8.26	13.14	16.76	16.76	.....	.....
Boston**	.10	9.84	10.68	11.87	12.26	9.72	10.26	9.87	13.45	17.79	16.79	23.89	21.14
Buffalo**	.15	8.80	9.95	11.40	11.15	8.80	9.30	8.90	11.60	17.45	16.45	21.55	20.80
Chicago**	.15	8.72	10.35	10.30	10.89	8.56	9.06	8.70	10.80	17.10	16.10	21.20	20.45
Cincinnati**	.15	8.89	10.41	10.35	11.21	8.94	9.62	9.02	11.68	17.42	16.42	21.52	20.77
Cleveland**	.15	8.72[1]	10.13	11.39	11.01	8.80	9.45	8.81	11.40	17.21	16.21	21.31	20.56
Denver**		10.90	12.53	13.27	13.07	10.74	11.24	10.88	12.97	.....	.....	.....	20.84
Detroit**	.15	8.98	10.61	10.65	11.26	8.93	9.62	9.01	11.16	17.38	16.38	21.48	20.73
Houston**		9.22	9.65	12.19[3]	10.78	8.95	8.86	8.63	13.10	17.50	16.55	21.55	20.85
Kansas City**	.15	9.59	11.42	10.95	11.76	9.43	9.93	9.57	11.77	17.17	15.87	21.87	21.12
Los Angeles**		9.50[1]	11.20	12.20	11.29	9.70	10.45	9.55	14.20	18.30	17.35	22.90	22.20
Memphis**	.15	9.13	10.50	.....	10.79	8.81	9.16	8.97	12.89	.....	.....	.....	.....
Milwaukee**	.15	8.86	10.49	10.44	11.03	8.70	9.28	8.84	11.04	17.24	16.24	21.24	20.59
New York	.10	9.46	10.23	11.45	11.56	9.61	10.30	9.84	13.35	17.50	16.50	21.60	20.85
Norfolk	.20	8.20	.....	.....	8.90	8.65	9.20	8.90	10.70	.....	.....	.....	.....
Philadelphia**	.10	8.45	9.70	10.76	10.45	8.80	9.05	8.85	12.05	17.48	16.48	21.58	20.83
Pittsburgh**	.15	8.72	10.13	11.28	10.99	8.56	9.06	8.70	11.40	17.10	16.10	21.20	20.45
Portland**		9.45	11.30	12.35	11.45	9.60	10.05	9.45	16.65	18.60	17.80	22.70	22.20
San Francisco**	.10	10.27	11.79[2]	11.50	11.88	10.48	10.59	10.17	15.20	18.30	17.35	22.90	22.20
Seattle**		10.51	11.57	12.50	11.95	10.10	10.65	9.94	16.20	18.60	17.80	22.70	22.20
Spokane**	.15	10.51	11.57	12.50	11.95	10.10	10.65	9.94	16.35	17.75	17.95	21.58	22.35
St. Louis**	.15	8.92	10.73	10.68	11.09	8.77	9.29	8.92	11.43	17.48	16.48	21.58	20.83
St. Paul**	.15	8.99	9.84	10.99	11.16	8.83	9.33	8.97	11.64	.....	16.69	.....	21.04

Base Quantities (Standard unless otherwise keyed): Cold finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb. All others: 2000 to 4999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may be combined with each other for quantity. ** These cities are on net pricing. Prices shown are for 2000 lb item quantities of the following: Hot-rolled sheet—10 ga. x 36 x 96—120; Cold-rolled sheet—20 ga x 36 x 96—120; Galv. sheet—10 ga x 36—120; Hot-rolled strip—¼" x 1"; Plate—¼" x 84"; Shapes—I-Beams 6 x 12.5; Hot-rolled bar—Rounds—⅝-2 15/16; Cold-finished bar—C 1018—1" rounds; Alloy bar—hot-rolled 4615—1⅝" to 2⅞"; cold drawn—15/16" to 2⅞" round; Hot-rolled 4140—⅝" to 2⅞" round, cold drawn—15/16" to 2⅞" round.

†† 13c zinc. ‡ Deduct for country delivery. [1] 15 ga. & heavier; [2] 14 ga. & lighter. [3] 10 ga. x 48 — 120.

(Effective Dec. 30, 1960)

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Birdsboro, Pa. *B6*	68.00	68.50	69.00	69.50	73.00
Birmingham *R3*	62.00	62.50*	66.50	.....	.....
Birmingham *W9*	62.00	62.50*	66.50	.....	.....
Birmingham *U4*	62.00	62.50*	66.50	.....	.....
Buffalo *R3*	66.00	66.50	67.00	67.50	.....
Buffalo *H1*	66.00	66.50	67.00	67.50	71.50†
Buffalo *W6*	66.00	66.50	67.00	67.50	.....
Chester *P2*	68.00	68.50	69.00	.....	.....
Chicago *I4*	66.00	66.50	66.50	67.00	.....
Cleveland *A5*	66.00	66.50	66.50	67.00	71.00†
Cleveland *R3*	66.00	66.50	66.50	67.00	.....
Duluth *I4*	66.00	66.50	66.50	67.00	71.00†
Erie *I4*	66.00	66.50	66.50	67.00	71.00†
Fontana *K1*	75.00	75.50	.....	.....	.....
Geneva, Utah *C7*	66.00	66.50	.....	.....	.....
Granite City *G2*	67.90	68.40	68.90	.....	.....
Hubbard *Y1*	.....	.....	66.50	.....	.....
Ironton, Utah *C7*	66.00	66.50	.....	.....	.....
Lyles, Tenn. *T3*	.....	.....	.....	.....	73.00
Midland *C11*	66.00	.....	.....	.....	.....
Minnequa *C6*	68.00	68.50	69.00	.....	.....
Monessen *P6*	66.00	.....	.....	.....	.....
Neville Is. *P4*	66.00	66.50	66.50	67.00	71.00†
N. Tonawanda *T1*	.....	66.50	67.00	67.50	.....
Rockwood *T3*	62.00	62.50	66.50	67.00	73.00
Sharpsville *S3*	66.00	.....	66.50	67.00	.....
So. Chicago *R3*	66.00	66.50	66.50	67.00	.....
So. Chicago *W8*	66.00	.....	66.50	67.00	.....
Swedeland *A2*	68.00	68.50	69.00	69.50	73.00†
Toledo *I4*	66.00	66.50	66.50	67.00	.....
Troy, N. Y. *R3*	68.00	68.50	69.00	69.50	73.00
Youngstown *Y1*	.....	.....	66.50	.....	.....

DIFFERENTIALS: Add, 75¢ per ton for each 0.25 pct silicon or portion thereof over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct) 50¢ per ton for each 0.25 pct manganese or portion thereof over 1 pct, $2 per ton for 0.50 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. Add $1.00 for 0.31-0.69 pct phos. Add 50¢ per gross ton for truck loading charge.

Silvery Iron: Buffalo (6 pct), *H1*, $79.25; Jackson *J1, I4*, (Globe Div.), $78.00; Niagara Falls (15.01-15.50), $101.00; Keokuk (14.01-14.50), $89.00; (15.51-16.00), $92.00. Add 75¢ per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 13 pct. Add $1.00 for each 0.50 pct manganese over 1.00 pct.

† Intermediate low phos.

FASTENERS

(Base discounts, f.o.b. mill, based on latest list prices)

Hex Screws and All Bolts Including Hex & Hex, Square Machine, Carriage, Lag, Plow, Step, and Elevator

(Discount for 1 container) — Pct

Plain finish—packaged and bulk.	50
Hot galvanized and zinc plated—packaged	43.75
Hot galvanized and zinc plated—bulk	50

Nuts: Hexagon and Square, Hex, Heavy Hex, Thick Hex & Square

(Discount for 1 container) — Pct

Plain finish—packaged and bulk.	50
Hot galvanized and zinc plated—packaged	43.75
Hot galvanized and zinc plated—bulk	50

Hexagon Head Cap Screws—UNC or UNF Thread—Bright & High Carbon

(Discount for 1 container)

Plain finish—packaged and bulk.	50
Hot galvanized and zinc plated—packaged	43.75
Hot galvanized and zinc plated—bulk	50

(On all the above categories add 25 pct for less than container quantities. Minimum plating charge—$10.00 per item. Add 7½ pct for nuts assembled to bolts)

Machine Screws and Stove Bolts

(Packages—plain finish)

	Discount Screws	Bolts
Full Cartons	46	46
Machine Screws—bulk		
¼ in. diam or smaller	25,000 pcs	50
5/16, ⅜ & ½ in. diam	15,000 pcs	50

Machine Screw and Stove Bolt Nuts

(Packages—plain finish)

	Discount Hex	Square
Full Cartons	46	57
Bulk		
¼ in. diam or smaller	25,000 pcs	
5/16 or ⅜ in. diam	56	60
	15,000 pcs	
	56	60

Rivets

	Base per 100 lb
½ in. diam and larger	$12.85
	Pct Off List
7/16 in. and smaller	15

TOOL STEEL

F.o.b. mills

W	Cr	V	Mo	Co	per lb	SAE
18	4	1	—	—	$1.84	T-1
18	4	1	—	5	2.545	T-4
18	4	2	—	—	2.005	T-2
1.5	4	1.5	8	—	1.20	M-1
6	4	3	6	—	1.59	M-3
6	4	2	5	—	1.345	M-2
High-carbon chromium					.955	D-3, D-5
Oil hardened manganese					.505	O-2
Special carbon					.38	W-1
Extra carbon					.38	W-1
Regular carbon					.325	W-1

Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher.

LAKE SUPERIOR ORES

51.50% Fe natural, delivered lower Lake ports. Interim prices for 1960 season. Freight changes for seller's account.

	Gross Ton
Openhearth lump	$12.70
Old range, bessemer	11.85
Old range, nonbessemer	11.70
Mesabi, bessemer	11.60
Mesabi, nonbessemer	11.45
High phosphorus	11.45

(Effective Dec. 30, 1960)

STAINLESS STEEL

Base price cents per lb. f.o.b. mill

Product	201	202	301	302	303	304	316	321	347	403	410	416	430
Ingots, reroll.	22.75	24.75	24.00	26.25	—	28.00	41.25	33.50	38.50	—	17.50	—	17.75
Slabs, billets	25.00	28.25	26.00	29.50–32.75	32.00	29.50–34.50	47.50	38.00	46.50	—	19.25–21.50	—	19.75–21.75
Billets, forging	—	37.75	38.75	39.50	42.50	39.50	64.50	48.75	57.75	29.25	29.25	29.75	29.75
Bars, struct.	43.50	44.50	46.00	46.75	49.75	46.75	75.75	57.50	67.25	35.00	35.00	35.50	35.50
Plates	39.25	40.00	41.25	42.25	45.00	45.75	71.75	54.75	64.75	30.00	30.00	31.25–31.75	31.00
Sheets	48.50	49.25	51.25	52.00	56.75	52.00	80.75	65.50	79.25	40.25	40.25	48.25	40.75
Strip, hot-rolled	36.00	39.00	37.25	40.50	—	40.50	68.50	53.50	63.50	—	31.00	—	32.00
Strip, cold-rolled	45.00	49.25	47.50	52.00	56.75	52.00	80.75	65.50	79.25	40.25	40.25	42.50	40.75
Wire CF; Rod HR	—	42.25	43.50	44.25	47.25	44.25	71.75	54.50	63.75	33.25	33.25	33.75	33.75

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., *C11;* Brackenridge, Pa., *A3;* Butler, Pa., *A7;* Vandergrift, Pa., *U1;* Washington, Pa., *W2, J2;* Baltimore, *E1;* Middletown, O., *A7;* Massillon, O., *R3;* Gary, *U1;* Bridgeville, Pa., *U2;* New Castle, Ind., *I2;* Detroit, *M2;* Louisville, O., *R5.*

Strip: Midland, Pa., *C11;* Waukegan, Cleveland, *A5;* Carnegie, Pa., *S9;* McKeesport, Pa., *F1;* Reading, Pa., *C2;* Washington, Pa., *W2;* W. Leechburg, Pa., *A3;* Bridgeville Pa., *U2;* Detroit, *M2;* Detroit, *S1;* Canton, Massillon, O., *R3;* Harrison, N. J., *D3;* Youngstown, *R5;* Sharon, Pa., *S1;* Butler, Pa., *A7,* Wallingford, Conn., *U3* (plus further conversion extras); *W1* (25¢ per lb. higher); Seymour, Conn., *S13,* (25¢ per lb. higher); New Bedford, Mass., *R6* Gary, *U1,* (25¢ per lb. higher); Baltimore, Md., *E1* (300 series only).

Bar: Baltimore, *A7;* S. Duquesne, Pa., *U1;* Munhall, Pa., *U1;* Reading, Pa., *C2;* Titusville, Pa., *U2;* Washington, Pa., *J2;* McKeesport, Pa., *U1, F1;* Bridgeville, Pa., *U2;* Dunkirk, N. Y., *A3;* Massillon, O., *R5;* S. Chicago, *U1;* Syracuse, N. Y., *C11;* Watervliet, N. Y., *A3;* Waukegan, *A5;* Canton, O., *T5, R3;* Ft. Wayne, *I4;* Detroit, *R5;* Gary, *U1;* Owensboro, Ky., *G5;* Bridgeport, Conn., *N8;* Ambridge, Pa., *B7.*

Wire: Waukegan, *A5;* Massillon, O., *R3;* McKeesport, Pa., *F1;* Ft. Wayne, *J4;* Newark, N. J. *D2;* Harrison, N. J., *D3;* Baltimore, *A7;* Dunkirk, *A3;* Monessen, *P1;* Syracuse, *C11;* Bridgeville, *U2;* Detroit, *R5;* Reading, Pa., *C2;* Bridgeport, Conn., *N8* (down to and including ¼").

Structurals: Baltimore, *A7;* Massillon, O., *R3;* Chicago, Ill., *J4;* Watervliet, N. Y., *A3;* Syracuse, *C11;* S. Chicago, *U1.*

Plates: Ambridge, Pa., *B7;* Baltimore, *E1;* Brackenridge, Pa., *A3;* Chicago, *U1;* Munhall, Pa., *U1;* Midland, Pa., *C11;* New Castle, Ind., *I2;* Middletown, *A7;* Washington, Pa., *J2;* Cleveland, Massillon, *R3;* Coatesville, Pa., *C15;* Vandergrift, Pa., *U1;* Gary, *U1.*

Forging billets: Ambridge, Pa., *B7;* Midland, Pa., *C11;* Baltimore, *A7;* Washington, Pa., *J2;* McKeesport, *F1;* Massillon, Canton, O., *R3;* Watervliet, *A3;* Pittsburgh, Chicago, *U1;* Syracuse, *C11;* Detroit, *R5;* Munhall, Pa., S. Chicago, *U1;* Owensboro, Ky., *G5;* Bridgeport, Conn., *N8;* Reading, Pa., *C2.*

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard & Coated Nails Col	Woven Wire Fence Col	"T" Fence Posts Col	Single Loop Bale Ties Col	Galv. Barbed and Twisted Barbless Wire Col	Merch. Wire Ann'ld ¢/lb.	Merch. Wire Galv. ¢/lb.
Alabama City *R3*	173	187	...	212	193	9.00	9.55
Aliquippa *J3***	173	190	...	...	190	9.00	9.675
Atlanta *A8***	173	191	...	212	197	9.00	9.75
Bartonville *K2***	175	193	183	214	199	9.10	9.85
Buffalo *W6*	.....	.....	.....	.....	.....	9.00	9.55*
Chicago *N4*	173	191	177	212	197	9.00	9.75
Chicago *R3*	.....	.....	.....	.....	.....	9.00	9.55
Chicago *W7*	173	.....	.....	.....	.....	9.00	9.55†
Cleveland *A6*	.....	.....	.....	.....	.....	.....	.....
Cleveland *A5*	.....	.....	.....	.....	.....	9.00	.....
Crawf'dsv. *M4***	175	193	...	214	199	9.10	9.85
Donora, Pa. *A5*	173	187	...	212	193	9.00	9.55
Duluth *A5*	173	187	177	212	193	9.00	9.55
Fairfield, Ala. *T2*	173	187	...	212	193	9.00	9.55
Galveston *D4*	9.10‡	.....	.....	.....	.....	.....	.....
Houston *S2*	178	192	...	217	198	9.25	9.80†
Jacksonville *M4*	184-1	197	...	219	203	9.10	9.775
Johnstown *B3***	173	190	177	...	196	9.00	9.675
Joliet, Ill. *A5*	173	187	...	212	193	9.00	9.55
Kokomo *C9**	175	189	...	214	195*	9.10	9.65*
L. Angeles *B2****	.....	.....	.....	.....	.....	9.95	10.625
Kansas City *S2**	178	192	...	217	198*	9.25	9.80†
Minnequa *C6*	178	192	182	217	198†	9.25	9.80†
Palmer, Mass. *W6*	.....	.....	.....	.....	.....	9.30	9.85*
Pittsburg, Cal. *C7*	192	210	...	...	213	9.95	10.50
Rankin Pa. *A5*	173	187	...	...	193	9.00	9.55
So. Chicago *R3*	173	187	...	...	193	8.65	9.20
S. San Fran. *C6*	.....	.....	.....	236	.....	9.95	10.50
Sparrows Pt. *B3***	175	.....	...	215	198	9.10	9.775
Struthers, O. *Y1**	.....	.....	.....	.....	.....	8.65	9.20
Worcester *A5*	179	.....	.....	.....	.....	9.30	9.85
Williamsport *S5*	.....	.....	.....	.....	.....	.....	.....

* Zinc less than .10¢. *** .10¢ zinc.
** 13-13.5¢ zinc. † Plus zinc extras.
‡ Wholesalers only.

PIPE AND TUBING

Base discounts (pct) f.o.b. mills. Base price about $200 per net ton.

	BUTTWELD														SEAMLESS							
	½ In.		¾ In.		1 In.		1¼ In.		1½ In.		2 In.		2½–3 In.		2 In.		2½ In.		3 In.		3½–4 In.	
STANDARD T. & C.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
Sparrows Pt. *B3*	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50								
Youngstown *R3*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Fontana *K1*	*10.75	*26.00	*7.75	*22.00	*4.25	*17.50	*1.75	*16.75	*1.25	*15.75	*0.75	*15.25	0.75	*15.50								
Pittsburgh *J3*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50
Alton, Ill. *L1*	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50								
Sharon *M3*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Fairless *N2*	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50								
Pittsburgh *N1*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50
Wheeling *W5*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Wheatland *W4*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Youngstown *Y1*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50
Indiana Harbor *Y1*	1.25	*14.0	4.25	*10.0	7.75	*5.50	10.25	*4.75	10.75	*3.75	11.25	*3.25	12.75	*3.50								
Lorain *N2*	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.50
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. *B3*	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50								
Youngstown *R3*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Fairless *N2*	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50								
Fontana *K1*	*6.25		*2.25		0.75		1.25		1.75		2.25		2.75									
Pittsburgh *J3*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.50
Alton, Ill. *L1*	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50								
Sharon *M3*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Pittsburgh *N1*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.50
Wheeling *W5*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Wheatland *W4*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Youngstown *Y1*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.50
Indiana Harbor *Y1*	5.75	*8.0	9.75	*4.0	12.75	0.50	13.25	*0.75	13.75	0.25	14.25	0.75	14.75	*0.50								
Lorain *N2*	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	*24.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.50

Threads only, buttweld and seamless, 2¼ pt. higher discount. Plain ends, buttweld and seamless, 3-in. and under, 5½ pt. higher discount.
Galvanized discounts based on zinc price range of over 9¢ to 11¢ per lb. East St. Louis. For each 2¢ change in zinc, discounts vary as follows: ½, ¾ and 1-in., 2 pt.; 1¼, 1½ and 2-in., 1½ pt.; 2½ and 3-in., 1 pt., e.g., zinc price range of over 13¢ to 15¢ would lower discounts on 2½ and 3-in. pipe by 2 points; zinc price in range over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 12.50¢ per lb.

CAST IRON WATER PIPE INDEX

Birmingham	125.8
New York	138.6
Chicago	140.0
San Francisco-L. A.	148.6

Dec. 1955, value, Class B or heavier 5 in. or larger, bell and spigot pipe. Explanation: p. 57, Sept. 1, 1955, issue. Source: U. S. Pipe and Foundry Co.

COKE

Furnace, beehive (f.o.b.)	Net-Ton
Connellsville, Pa.	$14.75 to $15.50
Foundry, beehive (f.o.b.)	$18.50
Foundry oven coke	
Buffalo, del'd	$33.25
Chattanooga, Tenn.	30.80
Ironton, O., f.o.b.	30.50
Detroit, f.o.b.	32.00
New England, del'd	33.55
New Haven, f.o.b.	31.00
Kearny, N. J., f.o.b.	31.25
Philadelphia, f.o.b.	31.00
Swedeland, Pa., f.o.b.	31.00
Painesville, Ohio, f.o.b.	32.00
Erie, Pa., f.o.b.	32.00
St. Paul, f.o.b.	31.25
St Louis, f.o.b.	33.00
Birmingham, f.o.b.	30.35
Milwaukee, f.o.b.	32.00
Neville Is., Pa.	30.75

Popular package is 8-oz. can fitted with Bakelite cap holding soft-hair brush for applying right at bench; metal surface ready for layout in a few minutes. The dark blue background makes the scribed lines show up in sharp relief, prevents metal glare. Increases efficiency and accuracy.

Write for sample on company letterhead

THE DYKEM COMPANY
2303G North 11th St. • St. Louis 6, Mo.

CUT SCRAPER TIME

END NIGHT CLEANUP & MORNING REBLUING

DYKEM HI-SPOT BLUE No. 107 is used to locate high spots when scraping bearing surfaces. As it does not dry, it remains in condition on work indefinitely, saving scraper's time. Intensely blue, smooth paste spreads thin, transfers clearly. No grit; noninjurious to metal. Uniform. Available in collapsible tubes of three sizes. Order from your supplier. Write for free sample tube on company letterhead.

THE DYKEM CO., 2303-G NORTH 11TH ST., ST. LOUIS 6, MO.

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MULTIPLE SPINDLE
CHUCKING MACHINES
Tool Rotating
GOSS & DE LEEUW MACHINE CO., KENSINGTON, CONN.

stack-molding gives you lower-cost castings

This 2¼-pound gray iron casting is a generator part for an automotive electrical system.

COSTS were CUT by casting 60 at a time . . . 5 to a mold . . . 12 molds high.

If you have high-volume requirements for fairly flat parts . . . investigate STACK-MOLDING.

to fill your IMMEDIATE NEEDS for QUALITY PRECISION CASTINGS at LOWER COST

Contact . . .

RELIABILITY . . . Uniformly high quality, with dependable composition and structure.

ACCURACY . . . Maintenance of close tolerances reduces production costs.

HIGH STRENGTH . . . Heat-treating facilities available to provide any desired properties.

OVERNIGHT DELIVERY WITHIN 500 MILES

GL GREAT LAKES FOUNDERS & MACHINE CORP.
LUDINGTON, MICH.

Specialists in Stack-, CO_2, and Shell-Mold Casting

FERROALLOY PRICES

Ferrochrome

Cents per lb contained Cr, lump, bulk, carloads, del'd. 65-71% Cr, .30-1.00% max. Si.

0.02% C....	41.00	0.50% C....	33.25
0.05% C....	34.00	1.00% C....	33.00
0.10% C....	33.75	1.50% C....	32.75
0.20% C....	33.50	2.00% C....	32.50

3-5% C, 53-63% Cr, 2.5% max. Si... 26.00
4-6% C, 58-63% Cr, 3-6% Si..... 22.50
5-8% C, 58-63% Cr, 3-6% Si..... 22.50
6-8% C, 50-56% Cr, 4-7% Si..... 22.00
4.00-4.50% C, 60-70% Cr, 1.2% Si.. 28.75
0.025% C (Simplex)..... 35.00
0.010% C max, 63-66% Cr, 5-7% Si. 34.50
0.25% C max..... 33.50
0.010% C max, 68-71% Cr, 2% Si max..... 34.50
0.25% C max..... 33.50

High Nitrogen Ferrochrome

Low-carbon type 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome max. 0.10% C price schedule.

Chromium Metal

Per lb chromium, contained, packed delivered, ton lots, 97.25% min. Cr, 1% max. Fe.

0.10% max. C..... $1.29
9 to 11% C, 88-91% Cr, 0.75% Fe... 1.38

Electrolytic Chromium Metal

Per lb of metal 2" x D plate (⅛" thick) delivered packed, 99.80% min. Cr. (Metallic Base) Fe 0.20 max.

Carloads..... $1.15
Ton lots..... 1.17
Less ton lots..... 1.19

Low Carbon Ferrochrome Silicon

(Cr 39-41%, Si 42-45%, C 0.05% max.) Carloads, delivered, lump, 3-in x down, packed.

Price is sum of contained Cr and contained Si.

	Cr	Si
Carloads, bulk.....	24.50	14.60
Ton lots.....	29.75	16.05
Less ton lots.....	31.35	17.70

Calcium-Silicon

Per lb of alloy, lump, delivered, packed. 30-33% Cr, 60-65% Si, 3.00 max. Fe.

Carloads, bulk..... 24.00
Ton lots..... 27.95
Less ton lots..... 29.45

Calcium-Maganese—Silicon

Cents per lb of alloy, lump, delivered, packed.
16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads, bulk..... 23.00
Ton lots..... 26.15
Less ton lots..... 27.15

SMZ

Cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ½ in. x 12 mesh.

Ton lots..... 21.15
Less ton lots..... 22.40

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 8-11% Mn, packed.

Carload lots..... 18.45
Ton lots..... 19.95
Less ton lots..... 21.20

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload bulk..... 19.20
Ton lots to carload packed..... 21.15
Less ton lots..... 22.40

Ferromanganese

Maximum base price, f.o.b., lump size, base content 74 to 76 pct Mn. Carload lots, bulk.

Producing Point	Cents per-lb
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	11.00
Houston, Tex.	11.00
Johnstown, Pa.	11.00
Lynchburg, Va.	11.00
Neville Island, Pa.	11.00
Sheridan, Pa.	11.00
Philo, Ohio	11.00
Rockwood, Tenn.	11.00
S. Duquesne	11.00

Add or substract 0.1¢ for each 1 pct Mn above or below base content.

Briquets, delivered, 66 pct Mn:

Carloads, bulk..... 13.70
Ton lots packed in bags..... 16.10

Spiegeleisen

Per gross ton, lump, f.o.b., 3% Si max.

Mn	Palmerton, Pa. 10 lb, pig	35 lb, down	Neville Is., Pa. 35 lb
16-19% ..	$98.00	$96.00	$100.50
19-21% ..	100.00	98.00	102.50
21-23% ..	102.50	100.00	105.50

Manganese Metal

2 in. x down, cents per pound of metal delivered.

95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.

Carload, packed..... 45.75
Ton lots..... 47.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, f.o.b. Marietta, O., delivered, cents per pound.

Carloads, bulk..... 34.25
Ton lots, palletized..... 36.25
250 to 1999 lb..... 39.00
Premium for Hydrogen - removed metal..... 0.75

Medium Carbon Ferromanganese

Mn 80 to 85%, C 1.25 to 1.50, Si 1.50% max., carloads, lump, bulk, delivered, per lb of contained Mn..... 24.00

Low-Carb Ferromanganese

Cents per pound Mn contained, lump size, packed, del'd Mn 85-90%.

	Carloads	Ton	Less
0.07% max. C, 0.06% P, 90% Mn (Bulk)	37.15	39.95	41.15
0.07% max. C	35.10	37.90	39.10
0.10% max. C	34.35	37.15	38.35
0.15% max. C	31.10	33.90	35.10
0.30% max. C	29.80	32.60	33.80
0.50% max. C	28.50	31.30	32.50
0.75% max. C, 80.85% Mn, 5.0-7.0% Si	27.00	29.80	31.00

Silicomanganese

Lump size, cents per pound of metal, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.3¢ f.o.b. shipping point.

Carloads bulk..... 11.60
Ton lots, packed..... 13.25
Carloads, bulk, delivered, per lb of briquet..... 14.00
Briquets, packed pallets, 2000 lb up to carloads..... 16.40

Silvery Iron (electric furnace)

Si 15.50 to 16.00 pct., f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $106.50 gross ton, frieght allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $93.00.

Silicon Metal

Cents per pound contained Si, lump size, delivered, packed.

	Ton lots,	Carloads,
98.25% Si, 0.50% Fe ..	22.95	21.65
98% Si, 1.0% Fe	21.95	20.65

Silicon Briquets

Cents per pound of briquets, bulk, delivered, 40% Si, 2 lb Si, briquets.

Carloads, bulk..... 8.00
Ton lots, packed..... 10.80

Electric Ferrosilicon

Cents per lb contained Si, lump, bulk, carloads, f.o.b. shipping point.

50% Si....	14.60	75% Si....	16.90
65% Si....	15.75	85% Si....	18.60
	90% Si....	20.00	

Ferrovanadium

50-55% V delivered, per pound, contained V, in any quantity.

Openhearth..... 3.20
Crucible..... 3.30
High speed steel..... 3.40

Calcium Metal

Eastern zone, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots.....	$2.05	$2.95	$3.75
100 to 1999 lb...	2.40	3.30	4.55

(Effective Dec. 30, 1960)

Alsifer, 20% Al, 40% Si, 40% Fe,

f.o.b. Suspension Bridge, N. Y. per lb.

Carloads, bulk..... 9.85¢
Ton lots..... 11.20¢

Calcium molybdate, 43.6-46.6%

f.o.b. Langeloth, Pa., per pound contained Mo..... $1.50

Ferrocolumbium, 58-62% Cb, 2 in. x D, del'd per lb con't Cb

Ton lots..... $3.45
Less ton lots..... 3.50

Ferro-tantalum-columbium, 20%

Ta, 40% Cb, 0.30% C, del'd ton lots, 2-in. x D per lb con't Cb plus Ta..... $3.40

Ferromolybdenum, 55-75%, 200-

lb containers, f.o.b. Langeloth, Pa., per pound contained Mo.. $1.78

Ferrophosphorus, electric, 23-26%, car lots, f.o.b. Siglo, Mt.

Pleasant, Tenn., $5.00 unitage, per gross ton..... $120.00
10 tons to less carload..... $131.00

Ferrotitanium, 40% regular grade

0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots, per lb contained Ti..... $1.35

Ferrotitanium, 25% low carbon,

0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots, per lb contained Ti..... $1.50
Less ton lots..... $1.54

Ferrotitanium, 15 to 18% high

carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton..... $255.00

Ferrotungsten, ¼ x down packed

per pounds contained W, ton lots delivered..... $2.15 (nominal)

Molybdic oxide, briquets per lb.

contained Mo, f.o.b. Langeloth, Pa..... $1.49
bags, f.o.b. Washington, Pa., Langeloth, Pa..... $1.38

Simanal, 20% Si, 20% Mn, 20%

Al, f.o.b. Philo, Ohio, freight allowed per lb.

Carload, bulk lump..... 18.50¢
Ton lots, packed lump..... 20.50¢
Less ton lots..... 21.00¢

Vanadium oxide, 86-89% V_2O_5

per pound contained V_2O_5..... $1.38

Zirconium silicon, per lb of alloy

35-40% del'd, carloads, bulk.. 26.25¢
12-15%, del'd lump, bulk-carloads..... 9.25¢

Boron Agents

Borosil, per lb of alloy del. f.o.b.

Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B
2000 lb carload..... $5.50

Ferro Zirconium Boron, Zr 50%

to 60%, B 0.8% to 1.0%, Si 8% max., C 8% max., Fe balance, f.o.b. Niagara Falls, New York, freight allowed, in any quantity per pound..... 30¢

Corbortam, Ti 15-21%, B 1-2%,

Si 2-4%, Al 1-2%, C 4-5-7.5%, f.o.b., Suspension Bridge, N. Y., freight allowed.
Ton lots per pound..... 18.25¢

Ferroboron, 17.50 min. B, 1.50%

max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D, ton lots... $1.20
F.o.b. Wash., Pa., Niagara Falls, N. Y., delivered 100 lb up
10 to 14% B..... .85
14 to 19%..... 1.20
19% min. B..... 1.50

Grainal, f.o.b. Cambridge, O.,

freight, allowed, 100 lb & over
No. 1..... $1.05
No. 79..... 50¢

Manganese-Boron, 75.00% Mn,

17.50% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd
Ton lots (packed)..... $1.46
Less ton lots (packed)..... 1.57

Nickel-Boron, 15-18% B, 1.00%

max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, del'd less ton lots..... 2.15

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When you need machine work or specially built machinery of any kind, you'll find Sun Ship qualified to do the job exactly to your specifications. We have machine tools of every size, and the facilities and skills born of long experience.

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Sun SHIPBUILDING & DRY DOCK COMPANY
CHESTER, PA.

Make light of any load with

ELECTROLIFT WORM-DRIVE HOISTS

Safe . . . sure . . . swift . . . ElectroLift worm-drive hoists have a place in every manufacturing plant, large or small. Ranging from ¼ to 10 tons in capacity, these units feature:

- Safe, sure braking and quiet, durable worm-gear drive.
- Totally enclosed gearing with ac or dc motor drive.
- Compact design for operation in close headroom.
- Quality construction and material for long, trouble-free performance.

For details on speeds, capacities, models and operation, consult the classified directory for the ElectroLift representative nearest you.

7990

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. . . for fast Quotes on SPRINGS *and* SMALL STAMPINGS *call us . . .*

Rely on U. S. Steel Wire Spring for springs and small stampings of high carbon steel. At our plant, rigid quality control and close inspections are standard operating procedures. This insures you of getting perfect springs which help you keep rejects to a minimum, lowering your production costs. Let us quote on your requirements.

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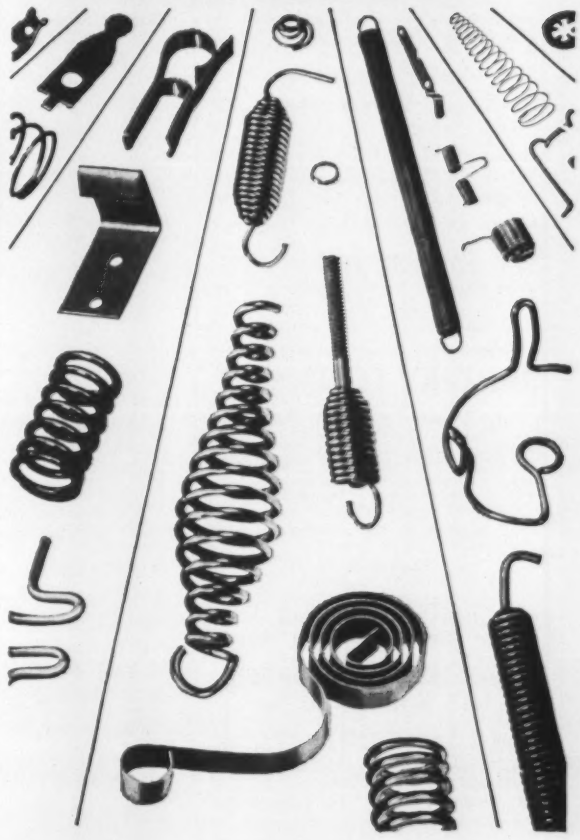

ELECTRICAL EQUIPMENT
RE-NU-BILT-GUARANTEED

M-G SETS 3PH-60 CY.

Qu.	KW	Make	RPM	DC Volts	AC Volts
2	4800(SU)	GE	450	300	2300/4600
1	3400	GE	450	300	2300/4600
1	3000	GE	514	600	2300/4600
2	1750/2100	GE	514	250/300	2300/4600
1	1750	GE	514	600	2300/4600
1	1500	GE	720	600	6600/13200
1	1000	GE	720	275	2300/4160
1	1000	GE	900	260	4000/6600
1	1000	GE	900	600	2300/4160
1	500	GE	900	125/250	440
1	500(New)	GE	1200	300	2300
1	500	GE	900	250	2300/4160
1	350	GE	900	125	440/2300/4160
1	300	GE	1200	275	2300/4160
1	300	GE	1200	250	440/2300
1	250	GE	900	250	440/2300
1	240	Whse.	900	125	220/440
1	200	Whse	1200	550	2300
1	200	El. Mfg.	1200	250	2300/4600
1	150	GE	1200	275	2300
1	150	Whse.	1200	275	2300

D. C. MOTORS

Qu.	HP	Make	Type	Volts	RPM
1	3000(New)	GE	Enc. S.V.	475	320
1	3000(New)	Whse.	Enc. F.V.	525	600
2	2700	GE	Enc. S.V.	415	250
1	2250(New)	GE	Enc. S.V.	600	300/300
1	2200	GE	MCF	600	400/500
2	2000	GE	Enc. S.V.	550	550/350
3	1750	GE	Enc. S.V.	250	175/250
2	1500	Whse.	New	600	300/700
4	1500	Whse.	New	525	600
1	1300	GE	MCF	300	300/400
1	1300	GE	MCF	600	450/600
1	1000	Whse.		500	300/2000
4	1000	GM	D-8	600	600/900
3	900	GE	MCF	250	150/300
1	850	GE	MCF	250	85/170
1	750	GE	MCF	600	120/360
2	750	GE	MCF	600	450/900
3	645	GE		300	1000
4	600	Whse.		250	275/550
5	400	GM	D-8	250	300/900

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KANE & ROACH
Capacity 5/8" to 3 1/2" Solids
Mfd. 1943 30 to 150 FPM.
Timken Bearing All Steel Construction
Direct Drive to Gearcase 75 H.P. M.D.
Weight 41,000# Excellent Condition
In Stock—Immediate Delivery
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28th St. & A.V.R.R. Pittsburgh 22, Pa.
GRant 1-3594

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USED and RECONDITIONED
RAILWAY CARS and REPAIR PARTS

BOX CARS
50—All-Steel, 50-Ton Capacity
Suitable for loaded interchange service.
FLAT CARS
5—50-Ton Capacity
HOPPER CARS
Open Top—Also COVERED
Excellent Condition — Immediate Delivery

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25-Ton to 120-Ton. Std. Ga.

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1961 Starts Slow In the Midwest

Used machinery dealers in the Midwest ended 1960 with very little activity.

And the outlook for the first quarter is very much the same.

■ A slow holiday season in the Midwest made December another slow month for used machinery dealers there. However, dealers weren't expecting any increased activity and, for the most part, don't look for much in January.

If anything, they believe, business might slip even further. So far, that's the way the situation is shaping up.

One dealer who did relatively well in November says, "We're getting along. Our November wasn't bad, but there is no denying that December was a pretty bad slip."

Another agrees, "I guess we were back further in December than at any time this year."

Rebuilders Inactive — However, Midwest dealers were slow to feel dropoffs earlier in 1960. This time, the situation has extended into the rebuilt machine sector of the industry. Rebuilding lines are down to four-day weeks and light crews.

Constant market checks by salesmen suggest that buyers are still holding on to cash and waiting for a better picture in the 1961 business outlook.

Slow First Quarter—Dealers of both reconditioned and rebuilt machine tools don't expect any real action during the first quarter of 1961. They are confident that customers still have cash reserves earmarked for tool purchasing. But these customers aren't ready to commit their cash until their own product lines show stronger sales gains.

The farm equipment industry, for example, has what is regarded as a pretty good year in prospect (see p. 96). Yet it is holding its purchases at minimum levels.

Comments such as "If the price is right, you can sell anything," aren't borne out by present machine tool movement in the Chicago area. Prices are at rock bottom, and rebuilders report that there isn't room for maneuvering at lower price levels.

Some Price Cutting—Dealers in reconditioned machinery have seen some price cutting in recent months and note that it is continuing. But auction machinery, despite the fact that it has fallen in price, still isn't at a level that justifies give-away prices.

An early casualty of the poor first quarter outlook: It seems positive that direct mail advertising, always heavy during the first months of the year, will be cut back sharply. In a few cases, it will be completely eliminated.

If there's any particularly bright spot in the immediate future of used machine dealers, it's the fact that supplies of available machine tools for resale are on the upswing. Prices on this equipment are soft enough so that some dealers have started to restock. But they admit they don't see any market upswing before March.

ROLLING MILLS—STEEL WORKS EQUIPMENT

ROLLING MILLS

1—40″ & 26½″ x 112″ PLATE MILL, 3-high.
1—4-HIGH HOT STRIP MILL, SINGLE STAND, reversing, 25″ & 42″ x 66″ rolls.
1—28″ x 40″ HOT STRIP MILL, 2-high, with 2500 HP D.C. reversing motor.
1—16″ 3-HIGH BAR MILL with pinion stand, new.
1—9″ BAR MILL, five stands, 3-high, one pinion stand, variable speed drive.
1—32″ & 20″ x 56″ 3-HIGH SHEET BREAKDOWN MILL, motor driven screwdown, tables.
1—32″ & 20″ x 48″ 3-HIGH SHEET BREAKDOWN MILL, power screwdown, roller and catcher tables.
4—29″ x 48″ 2-HIGH SHEET FINISHING MILLS.
6—26″ DIA. 2-HIGH COLD SHEET MILL STANDS with rolls 48″, 56″, 62″ and 68″ long.
1—16″ x 22″ 2-HIGH COLD MILL, 100 HP A.C. motor and gear drive.
1—8″ x 12″ 2-HIGH COLD MILL, 50 HP D.C. motor, reel, 252 FPM.
1—8″ x 10″ 2-HIGH COLD MILL, single stand.
1—8″ x 10″ 2-HIGH COLD MILL, four tandem stands, D.C. motors, reel, 252 FPM.
1—3½″ & 8″ x 5½″ 4-HIGH COLD MILL, unwind, rewind, 60 HP D.C. motor.

★ ★ ★ ★ SPECIALS ★ ★ ★ ★

REVERSING BLOOMING MILL

35″ 2-HIGH REVERSING BLOOMING MILL DRIVEN BY 3500 HP REVERSING MOTOR 50/120 RPM. ROLL STAND LIFT 31¾″. MOTOR-GENERATOR SET CONSISTING OF 3000 HP MOTOR, 6600 VOLTS, 3 PHASE, 60 CYCLE, WITH FLYWHEEL AND TWO GENERATORS. TABLES AND MANIPULATOR. MAJOR PORTION OF THIS EQUIPMENT WAS INSTALLED NEW IN 1945.

MECHANIZED SHEET MILL

COMPLETE MECHANIZED SHEET MILL CONSISTING OF CONTINUOUS FURNACES, 3-HIGH ROUGHING STANDS, 2-HIGH FINISHING STANDS, WITH NECESSARY ROLLER AND CATCHER TABLES, ROLL TYPE DOUBLERS, 2-HIGH COLD MILLS, ROLLER LEVELLERS, ROLL TURNING LATHE, FINISHING EQUIPMENT SUCH AS SHEARS, LEVELLERS, SHEET OILER, ANNEALING FURNACES, NORMALIZING FURNACE, PICKLERS, ETC. THE ITEMS ARE FOR SALE AS INDIVIDUAL UNITS, IF DESIRED. STREINE SIDE-AND-END SHEARING UNIT AND MECHANICAL PACK OPENING MACHINE WITH COMPLETE SYSTEM OF ROLLER CONVEYORS BETWEEN THE UNITS.

GEAR REDUCTION SETS

1200 HP GEAR DRIVE, ratio 3.73 to 1
1200 HP GEAR DRIVE, ratio 10 to 1
1000 HP GEAR DRIVE, ratio 3 to 1
400 HP GEAR DRIVE, ratio 9 to 1
400 HP GEAR DRIVE, ratio 8.2 to 1
200 HP GEAR DRIVE, ratio 10 to 1

MOTORS

1500 HP, 240 RPM, 2300/3/60
1200 HP, 295 RPM, 6600/3/60
1200 HP, 353 RPM, 2300/3/60
600 HP, 450 RPM, 2300/4600/3/60
400 HP, 450 RPM, 2300/4600/3/60
400 HP, 360 RPM, 2300/3/60

SHEARS

VERTICAL OPEN-SIDE BAR SHEAR, 28″ knives, capacity 1″ x 24″ or equal, 30 HP motor.
CROP SHEAR, 400 tons pressure, 14″ stroke, 28″ knives.
ALLIGATOR SHEAR, Canton No. 3, capacity 3¾″ square.
SHEET SQUARING SHEARS, capacity 156″ x ¼″.
SHEET SQUARING SHEARS, capacity 120″ x 10 gauge.
SHEET SQUARING SHEARS, capacity 48″ x 3/16″.
STAMCO SIDE AND END-CUT SHEARING UNIT consisting of 4 shears to trim both sides and cut to length, without handling. Conveyors included. Side shears will handle 162″, end shears 72″. Thickness ¼″.

FURNACES AND FURNACE EQUIPMENT

ELECTRIC MELTING FURNACE, 65 tons capacity, 19′ shell, top charge, 15,000 KVA.
80 FT. x 72″ PAIR FURNACE for sheet mill, gas or oil burners, motors, controls.
50 FT. x 62″ DOUBLE LANE PACK FURNACES for sheet mill, combination burners, controls.
59″ x 142″ x 70″ HIGH, ANNEALING FURNACES, will handle 48″ wide sheets.
81″ x 171″ x 70″ HIGH, ANNEALING FURNACES, for sheets up to 72″ wide.
STRAIGHTENING MACHINE for inner covers of annealing furnaces 72″ high, or less.
MORGAN INGOT STRIPPER CRANE, 200 tons capacity, 50 ft. span.

LEVELLERS AND STRAIGHTENERS

144″ x 1″ CAPACITY PLATE ROLLER LEVELLER, 150 HP A.C. motor, nine 14″ diam. rolls.
90″ PLATE LEVELLER, backed-up, 9 work rolls 14″ x 90″, capacity ½″ x 72″ plate.
72″ SHEET LEVELLER, 17 rolls, 4¼″ diam., 30 HP A.C. motor, McKay.
66″ SHEET LEVELLER, 17 rolls, 4″ diam., 25 HP A.C. motor, McKay.
54″ SHEET LEVELLER, 17 rolls, 4¼″ diam., 25 HP A.C. motor, McKay.
SUTTON NO. 1½ BF BAR STRAIGHTENER, capacity ¼″ to 2″ diam. bars, 60/240 ft. per min.
HALLDEN STRAIGHTENING AND CUTTING-OFF MACHINE for rods from 5/16″ to ⅝″ diam., 14′ cutoff.

MISCELLANEOUS

BILLETEER, size "C," for conditioning billets up to 13″ square.
BUILDING, structural steel, 50′ x 396′, with 25′ lean-to runway for 20-ton crane.
CORRUGATING MACHINE for sheets, removable dies 144″ long, for 1¼″, 2½″ and 3″ corr.
DOUBLERS for hot steel sheets, mechanical roll type, capacity 48″ x 144″.
GALVANIZING LINE for sheets 16 to 31 gauge, 62″ maximum width.
GRINDER FOR ROLLS 34″ x 192″, good condition, little used. Wheel size 36″ x 4″.
LATHE FOR ROLLS up to 40″ diam., bed 25′ long.
LATHE FOR ROLLS up to 30″ diam., bed 20′ long.
MECHANICAL PACK OPENING MACHINE for hot rolled steel sheets up to 48″ wide.
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Boggis 700 tap grinder
2—Seller 4T universal tool bit
6" Hammond double end pedestal
4" Hammond double end carbide, M.D.

GRINDERS UNIVERSAL
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2000 lbs. Erie Double Frame Steam Forging
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American 24"x101", geared anti-friction, M.D.
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2—LeBlond 20"x120", Timken, P.R.T., taper
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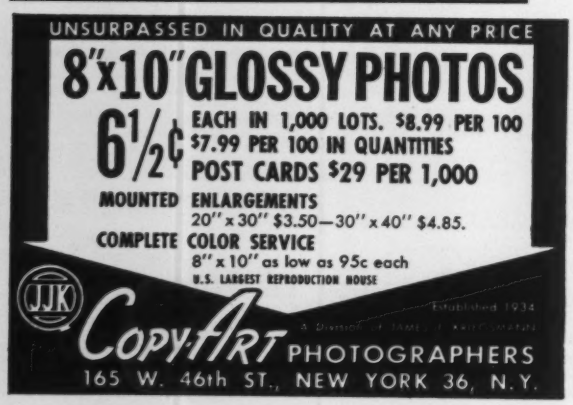
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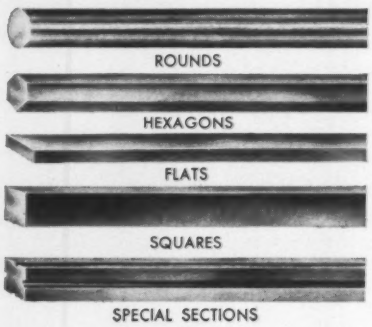

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